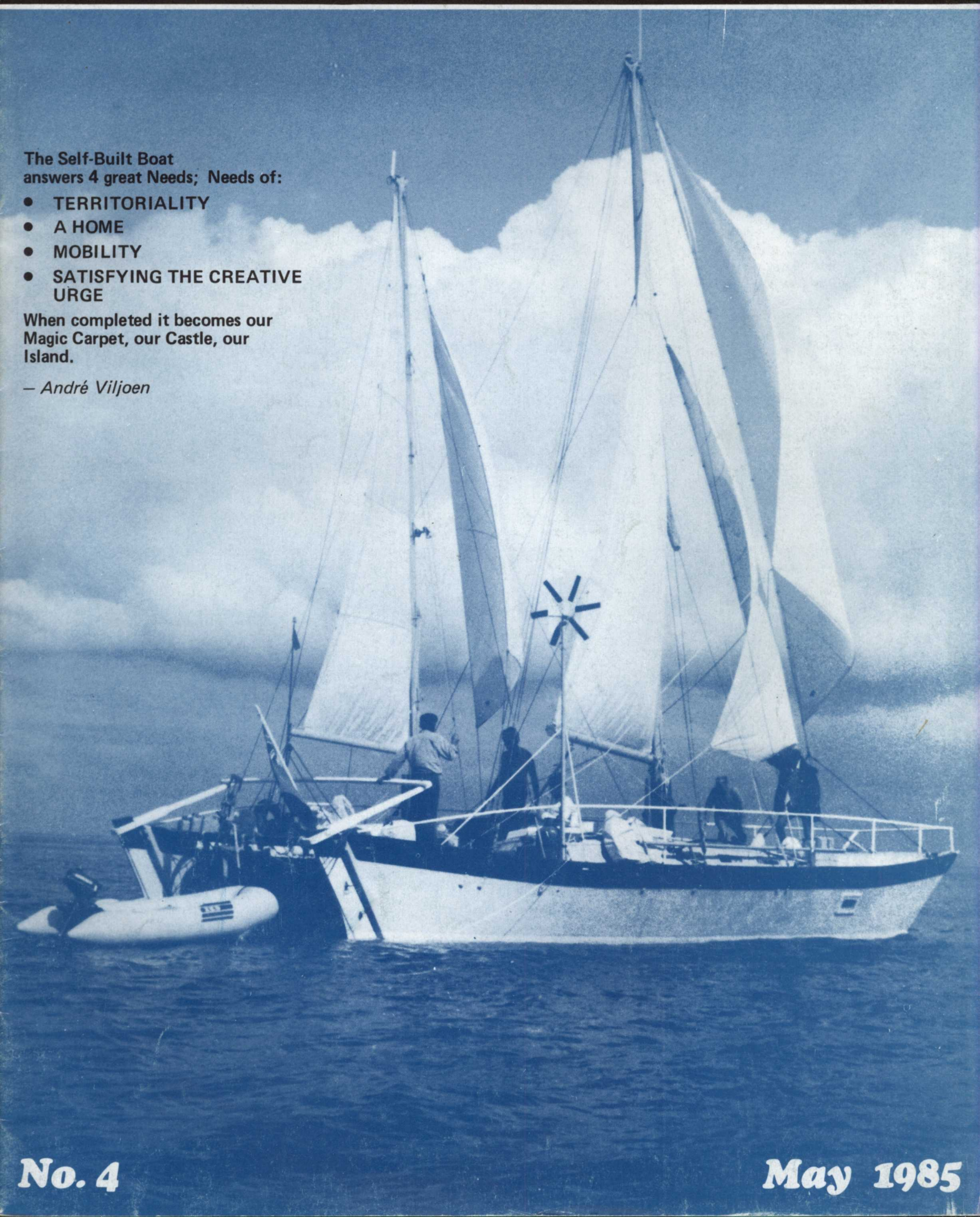
The Sea People/SAILORMAN



The Self-Built Boat answers 4 great Needs; Needs of:

- TERRITORIALITY
- A HOME
- MOBILITY
- SATISFYING THE CREATIVE URGE

When completed it becomes our Magic Carpet, our Castle, our Island.

– André Viljoen

No. 4 **May 1985**

Jim Wharram.

This Spring issue of 'THE SEA PEOPLE/ SAILORMAN' is about four weeks behind printing schedule. The reason is because the Editor (that's me, James) 'took off' at the end of March for a three week TIKI 21 trailer trip, ferrying the car and TIKI 21 from Plymouth, England, to Santander, North Spain. Trailing south across the great central Spanish plains, crossing several 'Sierra' ranges, to finish on the Mediterranean shore, where we spent two weeks 'interlocking' with dolphins off Gibraltar. In Gibraltar we met John Corke, the first PCA chairman, who has retired to a sailing life and sends his best wishes to you. Then we trailed back through the Algarve, Portugal, and Northern Spain, to Ribadeo to see my dear friend Pepe de Sela, mentioned in my book 'Two Girls Two Catamarans'.

The question, reader, is: Is it better to have an Editor/designer who gets out of the office and *sails,* or one who keeps up to schedule and does not sail, losing that vital contact with the sea? I am biased, the sea must have priority. The only problem is, it's hard to come back and sit with pen in hand in the office.

In the past, we have had two annual issues of *'Sailorman'* with Builders' News. In addition we had the Spring *'Mini Sailorman'* which contained news of the AGM, business matters, membership list etc. That 'Mini' issue took time and money for postage. The question was raised in committee, why not expand that 'Mini' issue to a full issue, still including the business news, but giving more Builders' News; i.e. 3 full issues a year instead of 2½, for little more capital outlay.

This issue is the first attempt to expand the Spring *'Mini Sailorman'* into a full-sized *'Sea People/Sailorman'* issue. As the Editor, I have tried to make it a 'fitting-out' issue based on the winter Boat Shows. Therefore, the format/layout of this issue is different than past 'Sea People/Sailorman' issues because it concentrates on 'fitting-out' and PCA — AGM organisational matters.

Like many of the builders, I get bored fitting out, and with organisation matter; but if a boat is not fitted out correctly, it is dangerous, and if no time is spent on organisational matter, then the organisation fades away. So this issue, though it may not have the sparkle of past or future issues of seafaring, storms, coastal trekking etc., is a vital issue.

We discuss the *engine possibilities* for our catamarans, providing a base article, around which future engine ideas can develop.

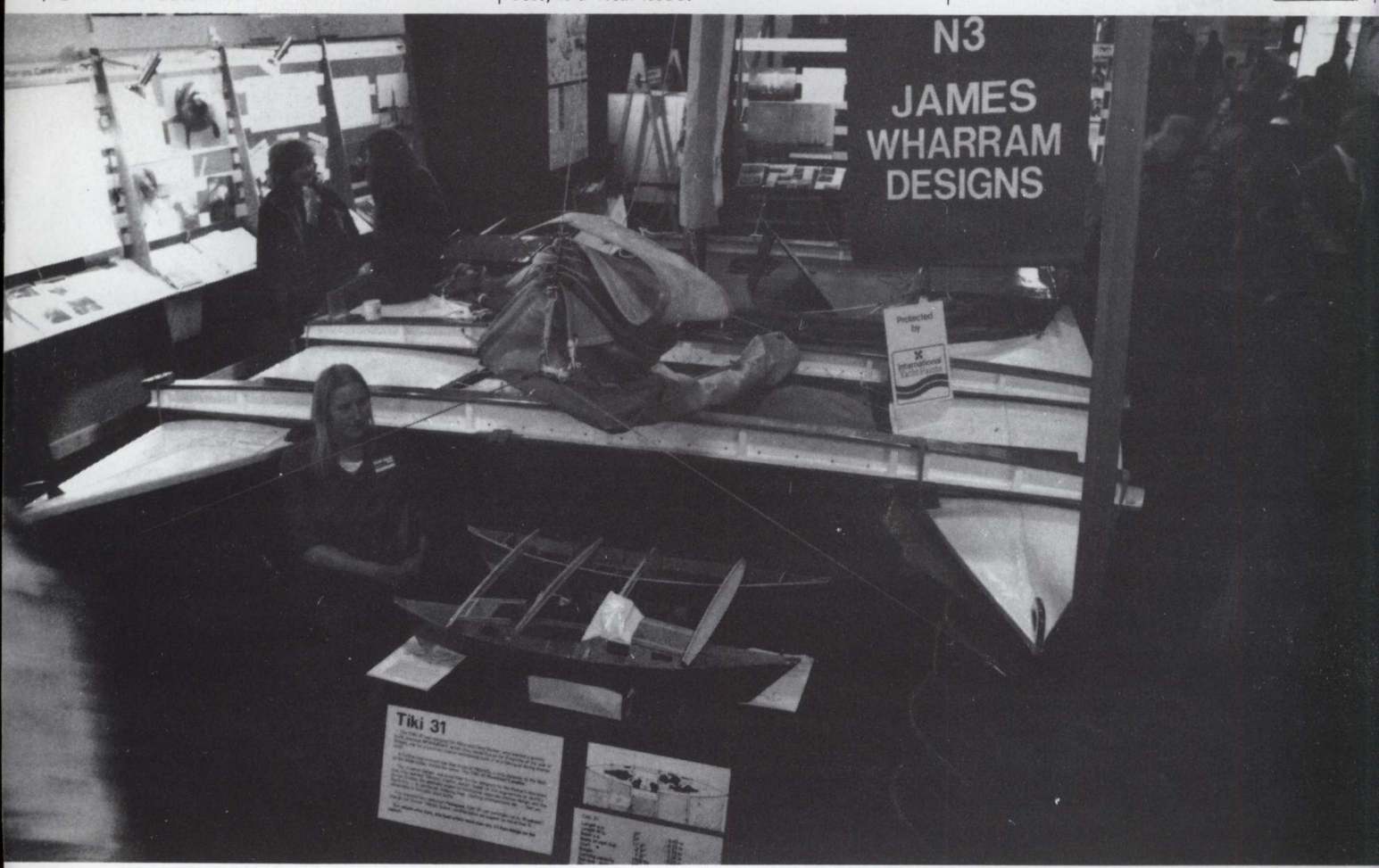
Sea Safety, using the multi-purpose 'Tinker Tramp' inflatable sailing dinghy with canopy, instead of using the more costly inflatable liferaft. Some builders may develop this idea in their own way.

Electronics, using one well known firm as a base to consider what electronics can provide to make the sailor's/navigator's life easier.

Crafts, to adorn or make the boat more comfortable, making a great start in this issue with an article on net-making.

Finally, amongst the main articles, an article by Maurice Killen that combines sparkling sailing aboard his TIKI 21 with practical information and ideas that, along with an idea based on a drawing in an earlier Sailorman, makes inclusion in this issue a must. On present sales, by the time this issue is printed, over 280 TIKI 21s will be in the process of building or sailing. The ideas of Maurice will help them all.

To get new ideas from builders across to other builders for mutual benefit, is one of the aims behind 'The Sea People/ Sailorman' magazine and the PCA organisation that produces the magazine. But as you read this issue of 'The Sea People/ Sailorman', think, in return for what other members have given you in the magazine, what can *you* offer them in future issues? Some ideas about your boat that you take for granted could be of great value to many others.



The Sea People/SAILORMAN

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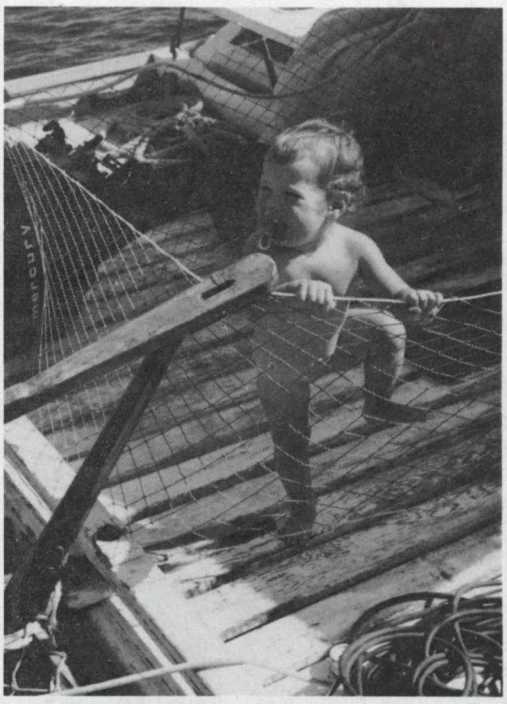

Nets used on Yoav Ktalovs' RAKA to keep baby safe

The Sea People has been edited by a group of Sea People:

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Ruth Wharram
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Cover Photograph:
Malcolm Dines' NARAI MK IV 'KITTY OF ALDERNEY' at 1984 Summer Meeting
(see News from Sea People)

Mike Barker reports on the Winter Meeting

MINUTES OF P.C.A., A.G.M. – January 12th, 1985

No. present: 70+

Meeting began at 18.20 hours

Chairman opened the meeting by thanking everyone for coming.

1. Approval of minutes of the last A.G.M. – passed.

2. Report from Chairman

Robin Faultley urged members to forget about the problems that the P.C.A. had suffered in the past and said that with our encouraging membership we could all look forward.

3. Secretary's Report

Mike Barker reported that the membership stood at about 370 which represented a slight increase on the 83/84 figure (since the A.G.M. the membership has risen to approximately 430). The approximate figure came about as the result of encouraging support demonstrated on the Boat Show stand, where in excess of 30 new members had enrolled. He thanked JWD for allowing the P.C.A. some of their precious space on the stand. He continued by saying that the publications, 'In the Wake of the Sailorman' and back issues of 'Sailorman' magazines, were still selling. He then reported that Robert Evans could not attend and also intended standing down from his post of Officer for the 'Sail Training Facility'. Norman Ellis had also resigned from the Buying and Selling Register, but this facility was still being operated in a simpler, modified form. Contact can be made through the Secretary. There has also been some interest in an East Coast Rally this year, although no-one wants to organise it. Perhaps a co-operative could take this on. Finally, we hoped that Donald Pinn, who had just returned from a Sri Lankan Holiday would be able to give a short talk on outrigger canoes.

4. Editor's Report

James explained, in full, the processes through which all the information which passes through the office goes, before a theme presents itself for the forthcoming edition of the magazine. He continued that the editorial team works in a very democratic way and that anyone who happens to drop in during those processes, will be roped in to help. He said that JWD were very fortunate in having a good printer on their doorstep who could overcome any setbacks.

5. Treasurer's Report

Andrew Beard began by saying that the last year had been a memorable one. He explained that the apparently poor figures (showing only half the subs) arose because two separate bodies were collecting for the Sea People and the P.C.A. He added that amalgamation would take place in March, and so the subs would effectively be doubled. He reported that printing costs were down because the P.C.A. had only paid half the costs. Unfortunately, several costs had been inherited from the previous year, and so expenditure for the next year would be strictly controlled. Budgets had been set for all Officers and they would be asked to account for any excesses. The balance showed a small loss of £200, but because of the forecast bright future, there would be no increase in subs. The assets showed a few minor amounts and there was a positive balance of £1000 in the bank.
At this stage Maurice Killen suggested amending the financial year to 9 months or 15 months to balance the accounts and to bring the membership year and financial year into line. The Chairman replied that 8 or 9 years ago a similar problem occurred. He suggested that Andrew Beard be left to clear the situation. Maurice Killen questioned the printing expenses. Andrew Beard said £1 per copy, but lower production costs were envisaged in the future.

6. Sailing Secretary

Robert Evans resigned saying that a polycat owner/sailor was required, in his opinion. Steve Turner, who now runs a charter business from Millbrook, Cornwall, was put forward and accepted by all.

7. Building Secretary

Hanneke Boon said all questions had been answered, whether the enquiry had come from a P.C.A. member or not. She added that it was intended to print all modifications in the magazine, and as a result try to get everyone to join the P.C.A.

8. Buying and Selling

Mike Barker said in future he would send a basic list of boats for sale to anyone who sent a S.A.E. or cash for postage. All subsequent dealings would have to be carried out by the two interested parties.

9. Sail Training Facility

Robert Evans suggested not letting it die. Steve Turner talked of his new business venture and said that it would overlap with the S.T.F.. James Wharram spoke of R.Y.A. certificates and said how the idea was to get a general level of competence amongst polycat sailors. He proposed Steve Turner, who agreed and was voted in.

10. Area Secretaries

A member from Switzerland spoke of the need for greater communication. Steve Turner answered all his queries at the Boat Show. There was growing interest in Eire. More activities were planned for the next 12 months. There were now 4 known boats – 1 Areoi in the west, a Dublin Captain Cook and Tikiroa and a Narai in Cork. Robin Fautley said that local rallies were invaluable for publicity. Steve Turner (S.W.) said that he was always late to meetings, but reports of these had always been good. 1 Oro, 1 Narai, 3 Tangaroas, 1 Tane in Millbrook. Robin suggested provoking more action in the various areas. Steve said that people were reluctant to be representatives.

11. Election of Officers

James Wharram took the chair to elect the Chairman. Robin said he was willing to stand down because of his guilt about not doing anything. No volunteers.
Maurice Killen proposed Robin, Richard Bumpus seconded – all agreed. Richard Bumpus praised the quality of the magazine.
Robin Fautley wanted a proposal for the present committee en bloc.
Proposed D. Barker. Seconded Mansel Rees – all agreed.
Sailing Secretary: Robin Fautly proposed Steve Turner - C. Kenyon seconded – unanimous.
Sail Training Facility merged with Sailing Secretary.
Buying and Selling to be continued on an 'ad hoc' basis. Robin Fautley said that common sense should be exercised in order that the Secretary should not be overburdened.

12. Any other business

Summer Meeting: James said that discussions with various skippers on the August Bank Holiday indicated that this was not necessarily the best time because of school holidays etc. Hanneke Boon suggested last week in July or first in August depending on tides and also possible inclusion with the Devoran Regatta.
Subscription year: Maurice Killen said that he wanted the financial year and the subscription year brought together. Discussion ensued.
Robin Fautley explained the problem of subs which had come about as a result of the split which resulted from the formation of the 'Sea People'. He talked of the shortage of time that the Treasurer had in sorting out the accounts.
Maurice Killen laboured the point.
M. Rees proposed leaving the problem to Andrew Beard as he was a qualified accountant.
G. Morris seconded.
Maurice Killen wanted an amendment bringing subscription date and financial year together.
Mr. Lewis seconded.
In favour of modifying first proposal 3.
Defeated.
Andrew Beard clarified the situation by saying he would sort something out by next year.
Robin proposed thanks to the committee for all its work.
G. Morris said he approved the venue and proposed 'en bloc' membership to the Cruising Association.
Meeting closed at 19.35.

The A.G.M. was followed by lectures given by Ken Payne of Wessex Resins & Adhesives on the WEST system and Donald Pinn on Sri Lankan outrigger canoes. Breaks were used for eager discussions by the members. Several people said, that they would have liked more time for informal discussion, and next year, we will try to arrange for this.

A personal report from Steve Turner about the P.C.A. AGM is printed on the back page.

Engines

compiled by J.W.

ENGINES

Over the years it has become apparent to my builder friends that I do not like engines. This is not from any great philosophical conviction – I am as happy as the next man to put the engine on to get into harbour for a night in comfort instead of rolling around outside in a calm; to up anchor and motor to a more sheltered spot in the harbour; or to use an engine to improve speed to get to shelter before oncoming bad weather.

No, I dislike engines because I do not understand them. In my early years of designing it seemed everybody else did understand them, so I left engines to them, while I concentrated on the sailing aspects of the designs. Maybe this was not such a bad policy because over the years several engine propulsion systems have emerged for use on Wharram catamarans. They are as follows:

1. Engines mounted in each hull driving a propeller on a shaft running through a thickened skeg.
2. Engines mounted on the platform with a lowering drive shaft and propeller to the water.
3. Engines with hydraulic drives.
4. Engines in pods slung off the cross beams using an outdrive leg.
5. Outboard engines mounted in various ways.

Inboard Engines

Engine installation type 1) mounted in the hulls appeals to most people new to multihulls, it is standard ship style engine installation. I personally have never liked it, because engines always smell, and I suffer from seasickness. The space in the bilges of Wharram catamarans is narrow for engine installation and easy access to the running engine. There are the complications of drilling a hole through the keel, through a thick skeg (or to one side) for the propeller drive shaft. Also, if water cooled, more 'holes' have to be bored in the sides of the hulls for the cooling system.

In 1981 in Denmark, we met the beautifully built Norwegian 45ft. ORO 'Vahine' owned by Oystein Tonnessen, who had installed a 16 hp. Farrymann diesel under each aft bunk. To my surprise the engines were easy to get at, no smell, and when the thickened sound insulated bunkboards were down, with the engines going, there was only a pleasurable hum of noise and one could be gently vibrated in the bunk. Here, in answer to enquiries from us, are Oystein's comments on how the boat manoeuvred:–

"You asked how the engine installation worked? Like a dream! By running one engine in forward gear and the other in reverse, the boat almost turns around her own centre. By running her on only one engine she acts surprisingly well. There is almost no extra drag on the helm. By running her on both engines there is a little drag (not much – and it would have been quite normal for a monohull), but whether this comes from the 'turning momentum' of the engine or anything else (i.e. the skeg may not be 100% in line?) we're not sure. The propellers on 'Vahine' – and the engines – run the same way. It is preferable, if possible, to get an identical gearbox that reverses the movements. If you can get the propellers to turn opposite ways, most of the 'turning momentum', and the drag on the helm, will more or less disappear. On 'Vahine' we chose a two-bladed propeller. The reason for this choice is that the propeller can be hidden behind the skeg when sailing.

With a 'mark' on the shaft inside the hull and a brake mounted on the shaft, you can easily block the propellers in the wanted position. Why not let the propeller spin? – you may well ask. First, I have to say that tests from N.T.H. in Trondheim, Norway (N.T.H. = Norges Tekniske Hoyskole: The Norwegian University of Technology) have shown that a blocked propeller causes less drag than a running one. But this is not the main reason for stopping the shaft and propeller. The reason is the gearbox and the bearings. Even if the manufacturer says that it does not matter whether the gearbox is spinning or not when it is in the 'free' position, some parts of the gearbox will break down a lot earlier than if the shaft had been blocked."

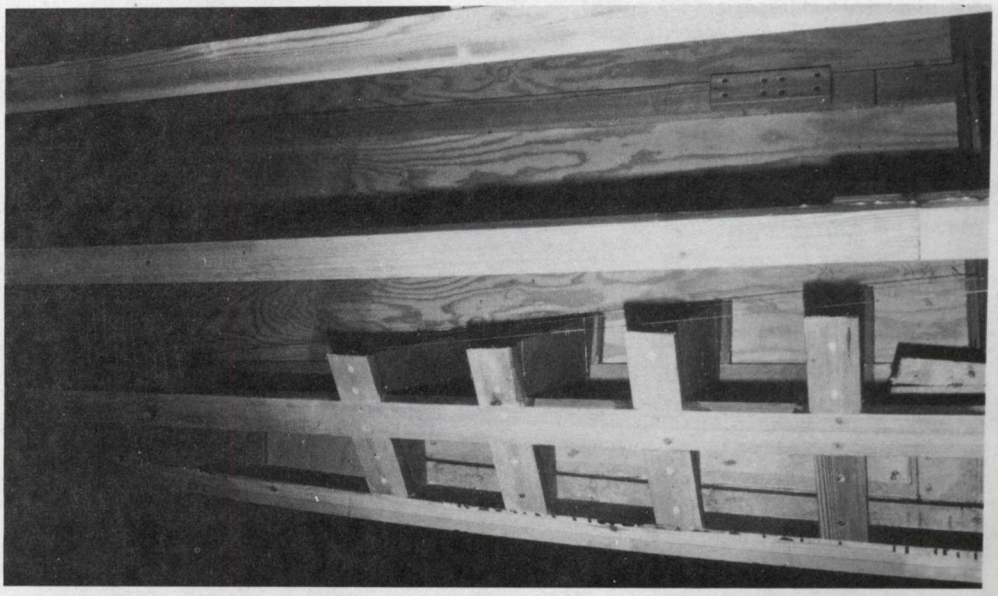
Well, that is the good news. Now here for installation difficulties Oystein Tonnessen also wrote about:

"We started to look for engines small enough to get into the hulls, but still with enough power and not too heavy. In those days, the new Farrymann FK3 (16 hp DIN 9) was introduced to the Norwegian market and, after seeing it at a boat show in Oslo, it seemed to be ideal. We ordered two of them plus the propeller shafts, bearings, etc. The engine measures 70.6cm x 47.5cm x 55cm., and has a weight of 118 kilos. By lifting the bunk in the aft cabin 10cm (4" approx.) there would be enough space for the engine.

The next step was to find a solution for the engine bedding, and how we should reconstruct the skeg to let the propeller shaft pass through. We started with the skeg and found that a hollow stainless steel skeg had got to be the right way of doing it.

There was another problem coming up: What about the backbone? At the time we didn't want to simply cut it away (today we would have done – I'll come back to this point later on), so where we had to cut it to allow the shaft to pass through, we made a box around it.

Then we had to make a bedding for the engine to rest on. We started with making the floor timbers for the engine bed. These we made by glueing 3 layers of 12mm plywood together and making 'mini bulkheads' of them. After that we made the actual bedding. The engine bedding was made of steel and bolted to the floor timbers. Lining up the engine and shaft is, in general, no easy task. It requires both care and patience. The local dealer of our engines (or maybe the manufacturer) has made a frame where the main details from the engine are exactly copied (the engine beds and the coupling). This makes it a lot easier. Instead of handling the heavy engine, we



Floor timbers for Engine bedding: Heavy ply bulkheads fitted in the bilge (see above).

We also made a mistake when we started drilling the first hole through the keel. We started in the shaft-log – far too close to the keel. We had to cut into the keel to give room for the bearing. The result was that the fitting between the foot of the bearing and the shaft-log wasn't 100% as it should have been. We knew this, of course, but we reckoned that a lot of bedding (3M-Marine Adhesive Sealer) would do the job – it didn't! Water leaked in between the shaft-pipe and the keel. We hadn't sealed the inner wall of the hole in the keel, and as the water soaked into the dry wood it started to expand. The six layers of fibreglass outside couldn't take the strain, and they cracked."

The two Farrymann diesel engines, total 32 hp., undoubtedly gave the 'sailing ship' ORO 'motor ship' abilities, but installation did give problems.

could work it all out with this frame of about 7–8 kilos. You just place the frame on top of the engine bedding before the bedding is bolted to the floor timbers. Then you adjust the coupling on the shaft to the coupling on the frame. Then drill the holes through the floor timbers and bolt it. Then you drill the holes in the bedding matching the holes in the frame. Next step is: Down with the engine and do the final shimming up.

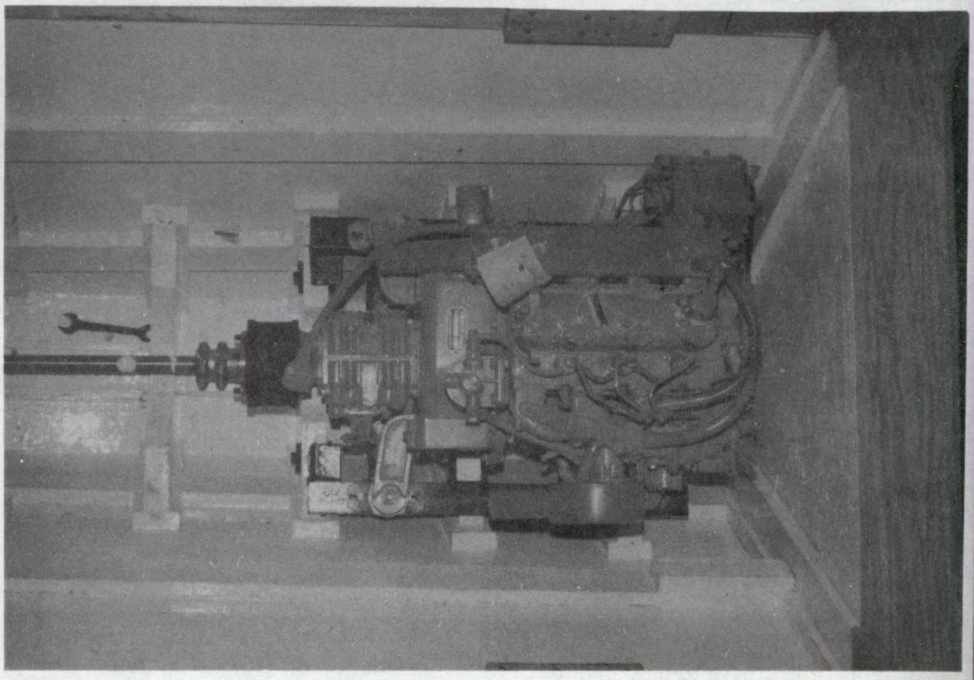
I should, of course, mention that this job has to be done **after** *the shaft is mounted through the skeg and the keel.*

All this heavy stuff under the aft cabin (approx. 240 kilos for the engine, propeller gear, the stainless steel skeg and the batteries in each hull) would put the centre of gravity pretty far backwards. To balance this up again we made a watertank of about 250 litres just in front of bulkhead No. 2.

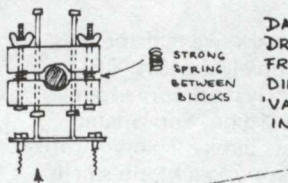
We didn't like the thought of having the diesel stored inside the hulls so we designed a diesel tank (containing approx. 250 litres) to be placed outside. We made it of 4mm stainless steel, gave it a V-shape and placed it hanging from the beams **under** *the deck. This is roughly how we did the engine arrangement. I hope I make myself clear and understandable.*

I said earlier that today we wouldn't have made the box to replace the part of the backbone that had to be cut away. We would just have made an inside shaft-log for the stuffing box.

above: Hollow stainless steel skeg and 2-bladed propeller.
below: Looking down on engine, placed under aft bunk.

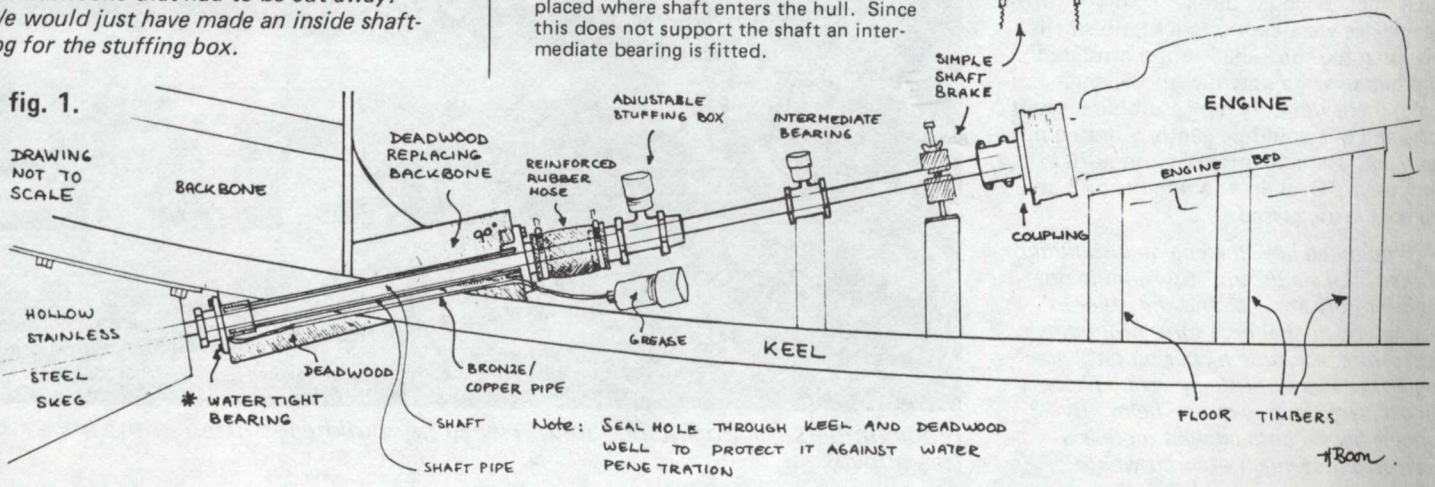


1. Water tight bearing* shown on outside of hull, which the builders say, with hind sight, is best. (The stuffing box of this bearing is placed inside hull and connected with a copper pipe).
2. An additional adjustable stuffing box is placed where shaft enters the hull. Since this does not support the shaft an intermediate bearing is fitted.



DATA ON THIS DRAWING ASSEMBLED FROM WHAT DID AND DIDN'T WORK ON 'VAHINE'S' INSTALLATION.

fig. 1.



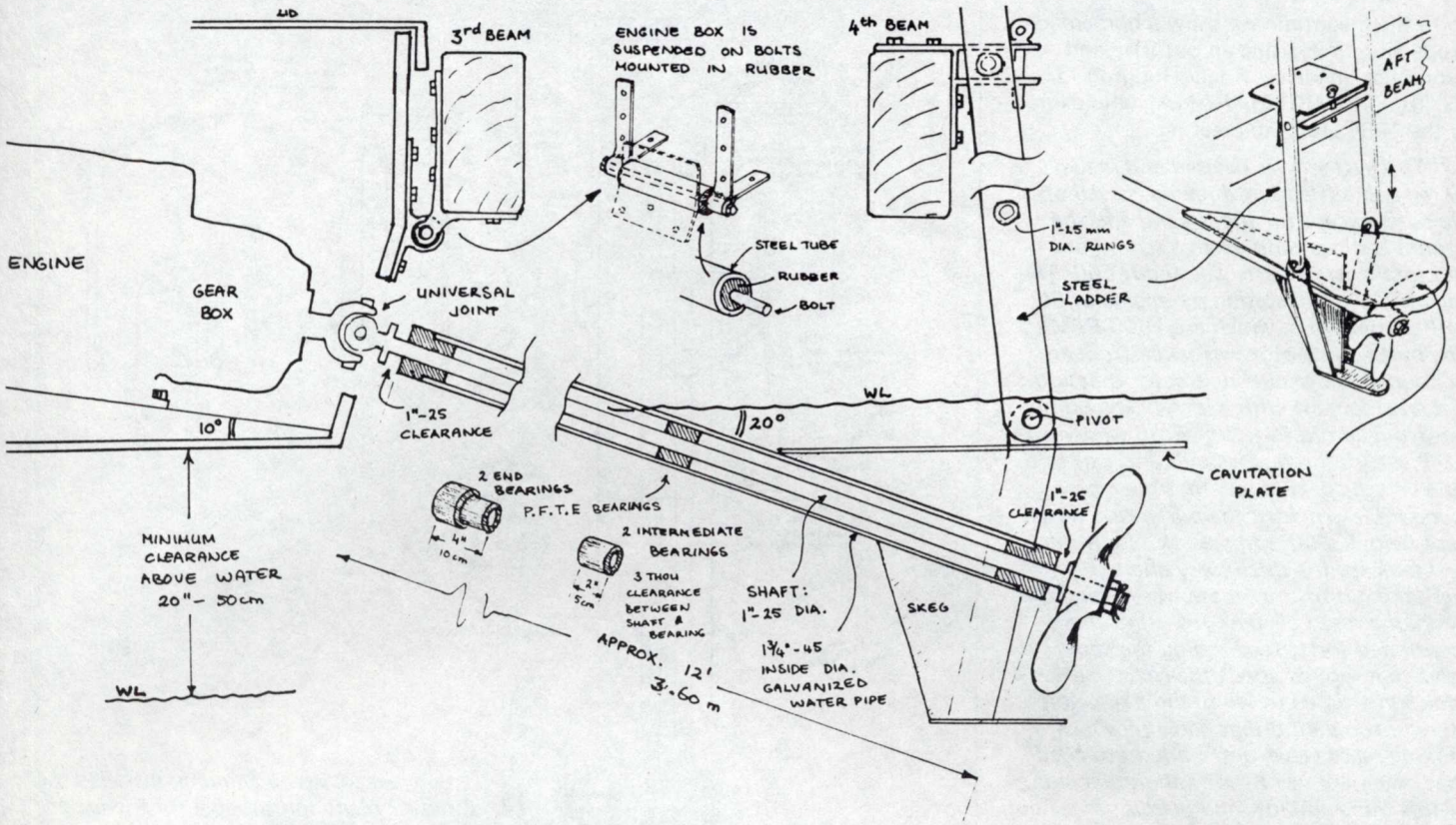


fig. 2.

TANGAROA ENGINE INSTALLATION by JANNIK CORTSEN
BAKKELY 26
DK-6330 MUNKEBO
DENMARK

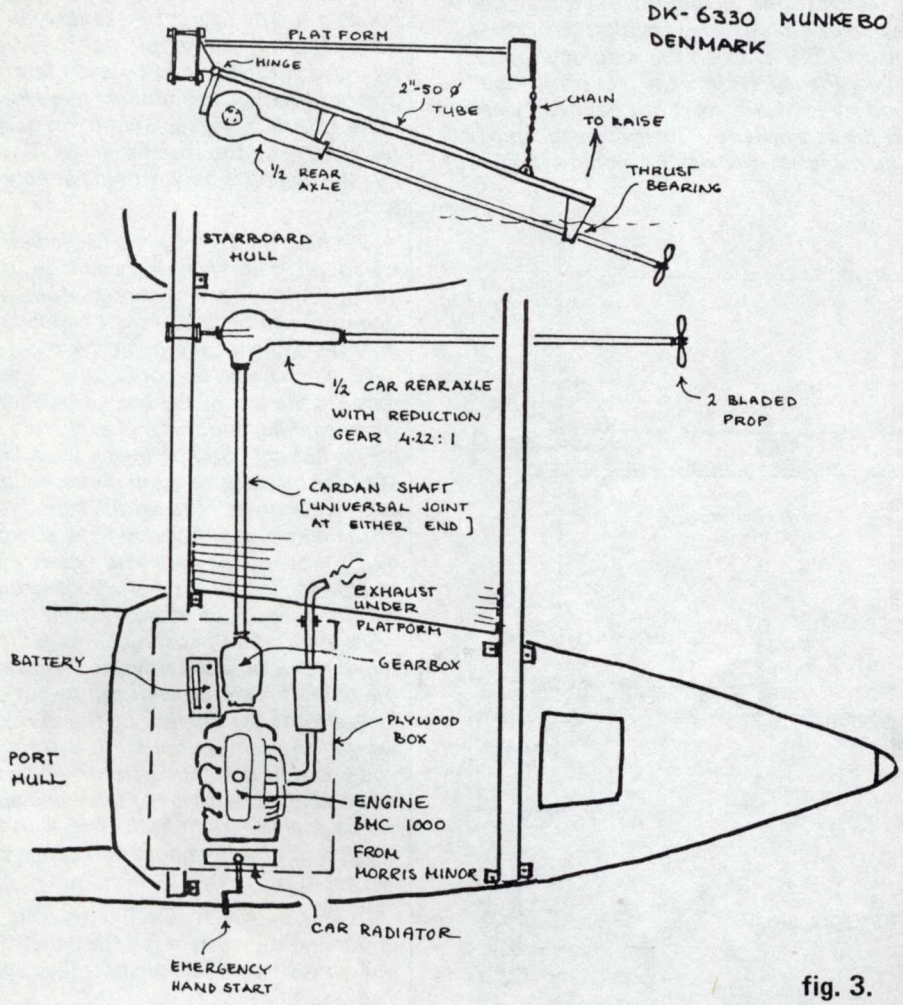


fig. 3.

Deck Mounted Engines

Installation method 2) engine mounted on the deck in a box hung off the main cross beams, was developed by Ernald Pearson in the mid 1970s for his early version of the NARAI Mk IV, this method has been widely used on Wharrams. A drawing of his 12 hp Yanmar Diesel (he started off using a 8 hp Yanmar) and long shaft arrangement was shown in an early 'Sailorman' and later 'In the Wake of the Sailorman'. The new drawing shows once again the system. (fig. 2). One variation to this engine between the hulls system is used by Jannik Cortsen of Denmark on his TANGAROA Mk I. (see fig. 3). He wrote in English on his drawing "It works perfect!"

Hydraulics

Method 3) installation of deck or in hull mounted engine(s) taking the power to the propeller(s) by hydraulics. In theory this saves all kinds of heavy steel engine to propeller shafts. However, I do not know of any builder who has successfully used this system.

Oelke Bos, PAHI 42 builder in Holland, is planning to use a 30 hp deck mounted diesel with hydraulic drive, weighing 210 kg. On mentioning criticism heard in England about losing up to 30% power in transmission, Oelke Bos claims that his system will lose only about 3%. Information on this system and its performance will at some later date be featured in the 'Sea People/Sailorman'.

In the meantime we show a homemade propulsion unit, using an outdrive and hydraulics, made by Roger Hodgson for his ORO, 'RANGI MARAMA', who came to the 1984 Devoran meeting.

"This system was devised and made by me and a friend in three days. All of the parts except for the leg end and the hydraulic pipes came from a scrap yard and total cost of parts was about £60. The engine is a petrol stationary engine of 30 BHP at max. revs, which are 2600 RPM. The hydraulic motor was taken from an ex council hedge cutting tractor that had lost an argument with a lorry. The pump was from an old fork lift. Both were made by 'Plessey'. I rang Plessey's and was told by a very helpful fellow that they were compatible provided the pump revs were kept below 3000, so I was ok. I got the fuel tank from a small lorry and while I was taking it off, my mate was getting the hydraulic reservoir tank from the above mentioned fork lift. Finding the spool valve that looked about the right size took some time but we found a huge old press of some kind that had a nice new looking relief valve, and while I attacked that, my mate went round the other side of this thing and low and behold, the spool valve.

Collecting the plate, tube and box section channel and odds and ends including cuts, grazes and not a few nettle stings, took only about ½ hour, so by lunch time we had most of what was needed.

The engine set-up was assembled, welded, drilled and taken apart for galvanising by nine that night and I thought I was home and dry as they say, but I'd forgotten Sods Law. The leg I had farmed out to a gent who shall be nameless. He now rang me and told me that it 'couldn't be done'. I had already drawn it up on several scraps of paper and knew it could. In the end he said 'OK you make the thing, I'll fit the works if you supply the shafts and bevel pinions', he said he would supply and fit the housing and thrust bearings.

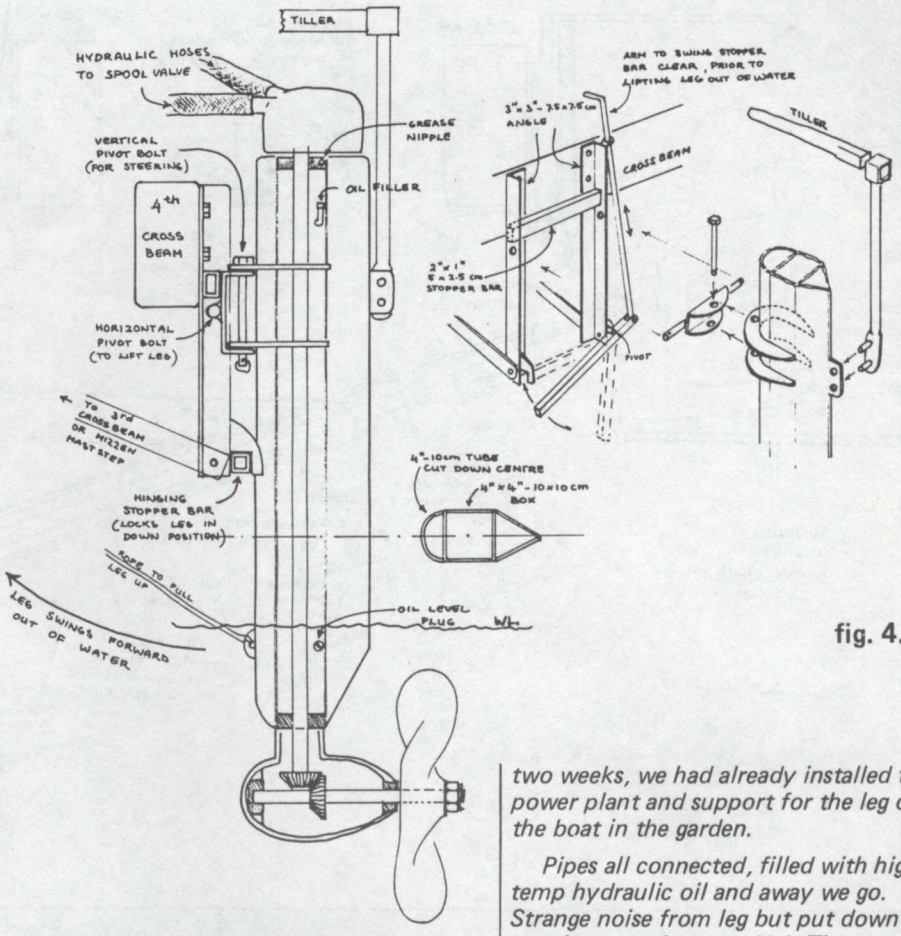


fig. 4.

Back to the scrap yard. Yes, they had a pile of pinions, also stainless steel shaft, cost £7.50. Back to the welding shop to make the leg, it took the rest of the day and some of the night but next day was at the galvy plant. The leg was taken to the nameless man and collected after about two weeks, we had already installed the power plant and support for the leg on the boat in the garden.

Pipes all connected, filled with high temp hydraulic oil and away we go. Strange noise from leg but put down to running out of water. Ha! Three weeks later we launched at Dartmouth. More strange noises from leg. Leg taken off and sent to Marine Eng. factory in Dartmouth, cost £680! (? Ed.) Nameless man had made gasket between bottom bearing and prop housing and had forgotten to leave oil hole. There was one gallon of top quality oil in leg getting stirred by shaft but for bottom bearings and pinions there was none. Since it was repaired it has been faultless. The top speed is about 3½ knots, but the engine is only running at about ¼ speed.

We have a 14 x 14 prop (3-bladed) at the moment and I think I could go to an 18", get more power from the same revs. The prop can be left or right handed, you only need change the two drive pipes over. We have an air cooled engine that requires the top of the box to be open when running and this makes it a bit noisy, but any kind of engine would do. Mini for instance or small diesel, so long as the revs do not exceed the stated revs of the pump. I know very little about hydraulics and maybe some expert will be able to find all sorts of things wrong with this set-up, all I know is that it does work and it didn't cost much to get it together. It puts the drive at the back of the boat, it is steerable, it can be cut down in size to fit the smallest boat and if you wanted to beef up your stern netting beam you could have it right astern. The engine box makes a good seat or table and above all the engine is right at deck level in the open, so if anything does go wrong you can get at it."

If any 'expert' would like to write on improving this system for the benefit of builders as Roger has suggested we will gladly publish it.

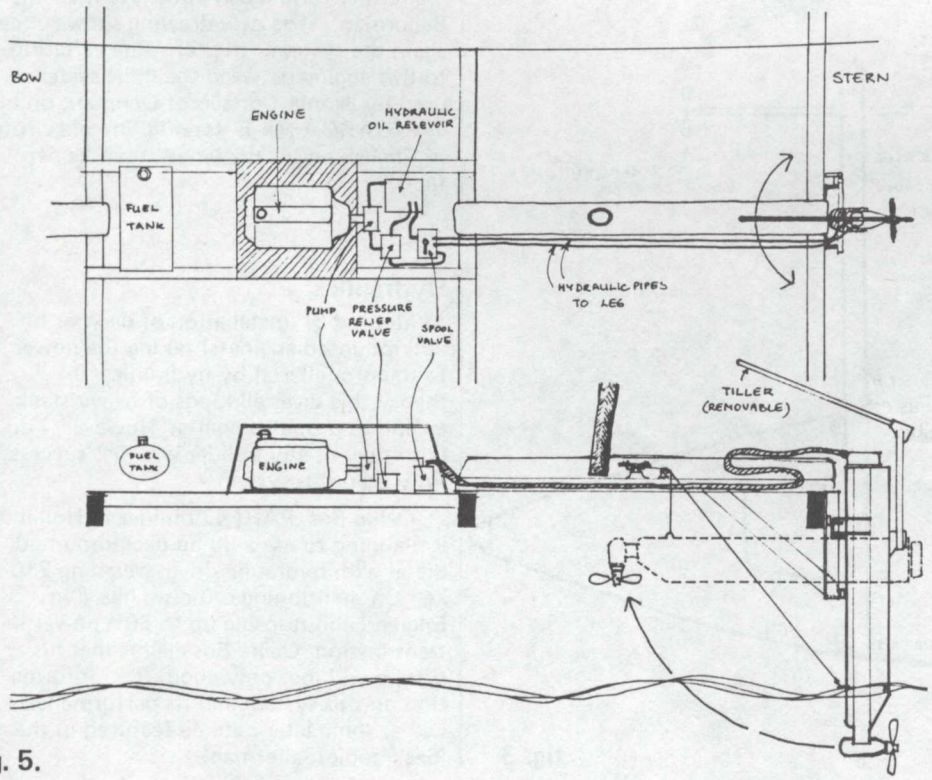


fig. 5.

Outdrive Legs

Method 4) is the inboard/outboard system mounted in a pod/nacelle, the system developed by the Prout Bros. for their successful professionally built catamarans. Between the two hulls is a streamlined nacelle or pod that contains the inboard engine mounted close to the sea so that when needed the outboard leg can be swung down. The Prout system is specially designed for Prout catamarans. It uses a 15 hp Yanmar diesel engine on a 37ft. 'Snowgoose', connected to an outdrive leg and 3 bladed 14" x 10" propeller. I have motored/manoeuvred on a 'Snowgoose' and there is no doubt about its manoeuvrability. (Speed 6.5–7 knots).

Many of our builders have used this method, hanging an engine carrying nacelle off the beams installing various inboard engines with various outboard drive systems. This system has given more problems than system 2). Either the nacelle has been too big and slammed the sea, or there has been serious incompatibility between the engine and the commercial outboard drive shaft.

One nacelle/pod installation that stood out for its neatness and mechanical reliability was the system used on 'FELIX' a NARAI Mk. II built by Fleming Hanssen in Denmark. Photo 1 shows its minimal frontal resistance to the sea flowing between the hulls. Photo 2 shows a Morris Car engine driving a Volvo outdrive shaft that has been extended with part of a Citroen 2CV rear axle.

It is most effective, extremely manoeuvrable, but obviously requires engine knowledge and skill.

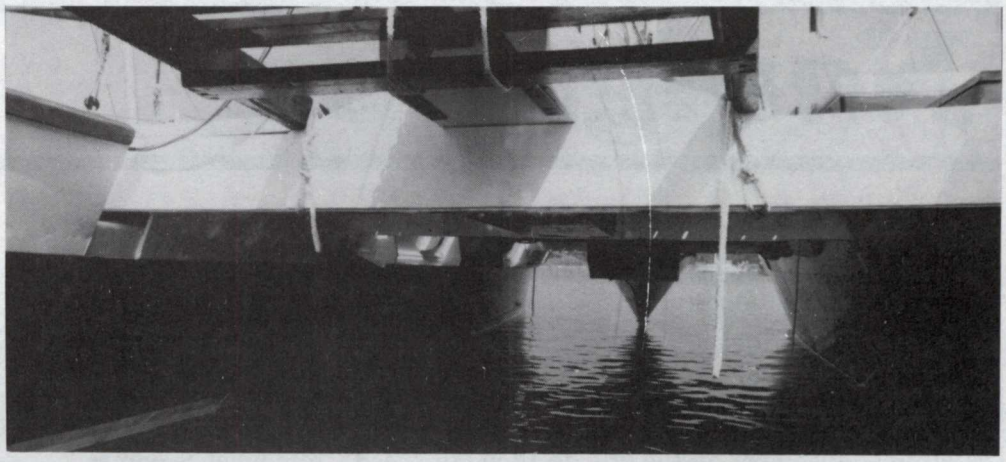


Photo 1: View between hulls from bow, shows streamlining of nacelle/pod. Leg is down on this picture.

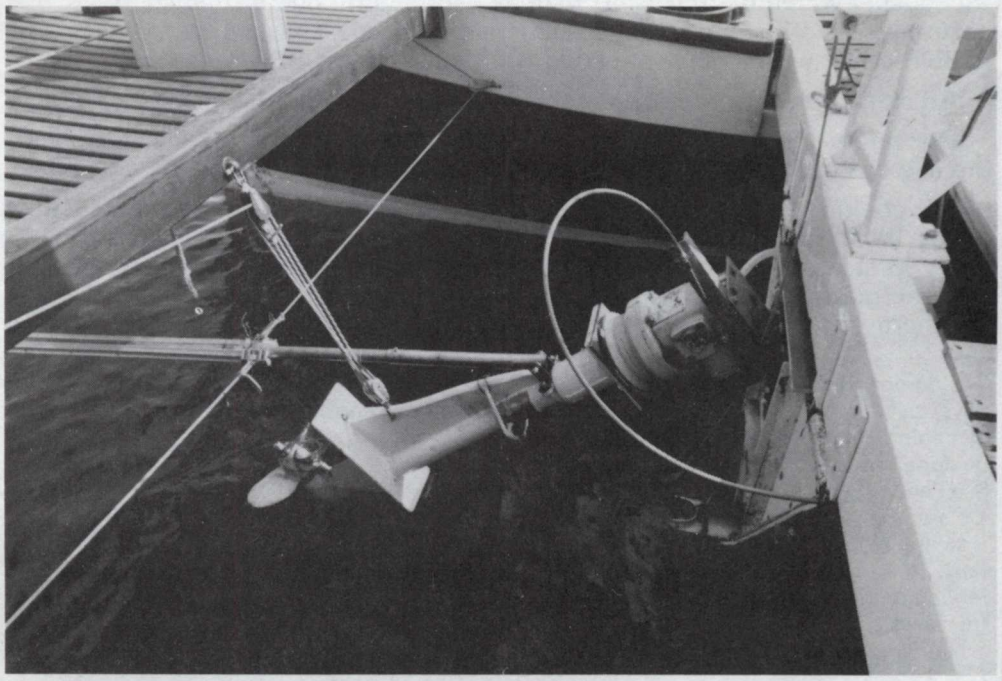


Photo 2: Extended Volvo outdrive leg is hoisted out of the water with a block & tackle. Leg-drive and engine-drive engage when leg is fully lowered. Leg locks into socket at bottom of Nacelle. Leg can be steered with aft pointing tiller, connected to boat tillers with lines & blocks.

Outboard Engines

System 5) the outboard engine, is the method I use to propel my boats. It's chief advantage is that it requires *no* mechanical skills to install. Another advantage is that, when it goes wrong, assuming you have kept the carburettor clean, changed the plugs and checked the fuel tank, you take it to the nearest outboard specialist shop and say 'please repair this'. You can also take it home for storage in the winter. However, you do pay for their simplicity. The outboard engine is a costly item, and most of them are 2-stroke engines that 'drink' an expensive petrol/oil cocktail. The Japanese are now producing new 4-stroke engines that run quieter and use less fuel.

The PAHI 31 'Free Bird' of Ken Newton who visited the 1984 Devoran Meeting had a 7.5 hp Honda FM100FLD . .

It gave absolute manoeuvrable power coming off moorings in a fast flowing tide, hemmed in by other boat moorings.

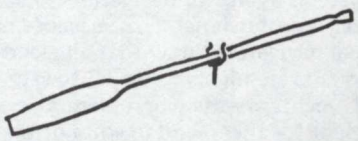
One of the problems of all the outboard engines is the small shaft length, that means that to get the propeller immersed in the water to work well the engine head is close to the sea. One can get a shaft leg extension for some engines. Another problem is that outboards, in general, are designed for fast light planing boats.

Yamaha, rival to Honda, have come up with a new 10 hp outboard engine which was exhibited at the 1985 London Boat Show. (Yamaha Fg.gA). It is a) a 4-stroke engine (less fuel), b) has a long shaft (20" or 25" transom height) and c) is a slow revving engine with a bigger propeller for slower speed and more thrust.

I would be willing to try this engine up to NARAI size. In fact I will buy one for my next boat (TIKI 31?, PAHI 35?). It seemed so much the engine I would want, remembering my deficiency in engine mechanics. I asked the exhibitors at the London Boat Show if British Wharram builders could get some kind of discount. They said yes, about 10% if I would vouch that they were Wharram builders! The latest report is that delivery will not be until the end of 1985.

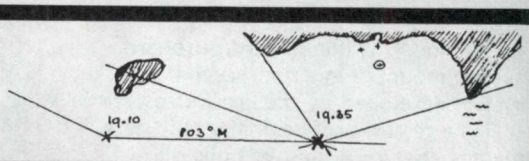
From this survey of engine propulsion systems as used on Wharram catamarans, there should be some system suitable for the pocket, skills and waters sailed by every builder.

Though, as mentioned at the end of a previous engine article in 'In the Wake of the Sailorman', this is also a propulsion system.



How about an article on Yulos in a future issue?

Navigation



Yacht Electronics

by James Wharram

My first ocean voyages were navigated using a lead weight on the end of a line for depth findings.

Speed through the water we at first estimated by a 'Dutchman's log', that is, tossing empty milk tins overboard and timing how long they took to pass the known distance from the front to aft beam. Later we made a 'proper log', using a triangular 'chip' on the end of a reel of line with knots at pre-determined distances on the line, to time our speed (from whence comes the word 'knots' to estimate boat speed).

'Time', essential in astro-navigation, was obtained with an old cheap 'tic toc' pocket watch (an Ingersoll) that we kept in a tin box protected by cotton wool against motion and temperature change, checked by a *valve* radio receiver with a range of about 1000 miles, to get BBC time signals.

An ex-aeroplane compass for course steering.

Our safety 'flares' were an iron rod with rags tied on to it, in an emergency, dip in a can of kerosene/paraffin, light and hold.

For cooking a *wick* burner kerosene/paraffin cooker of the type designed about 1900 (Ripping Gilley), plus a Primus. Cabin lights and navigation lights were kerosene/paraffin 'hurricane' lights (they blew out above force 6!). And *no* 'plastic' ropes, sails, buckets, water or food containers! Well, we got there, fed well, and read books on the way.

I do not want to romanticise those days, just show the minimum needed to 'get going'; if money is tight, it can still be done. Indeed, I drew attention in 'The Sea People/Sailorman' No. 3, Page 26, to a Marvin Creamer who, at the age of 68, is sailing around the world with 'no sextant, compass, electronics or wristwatch!!', relying on his trained instincts/observations for navigation.

Remember, 'low technology' requires high mental and physical application and can take years to acquire. During that time one can have a miserable time, getting lost, going aground, and having the vastness of the sea making one feel so inadequate.

Over the last 20 years, the 'high tech' of the electronics industry have stepped in with yacht navigation aids to provide instant, easy answers to beginners at navigation, adding to the safety and pleasure of the new sailor.

This has brought a new problem to the sailing beginner: 'What electronics do I really need? What is the best?' For the yacht magazines and Boat Shows have as much space devoted to advertising various navigational aids as they do to boats, and the newcomer to sailing gets totally confused as to what he or she really needs, and the price they should pay.

Note, I refer to these electronic navigation systems as *aids* to navigation. This is a standard professional term, because professional navigators know that all electronic instruments are highly 'allergic' to salt water; yachts are the worst possible environment for them, and in spite of the best efforts of the modern electronics industry they can and do go wrong. So total dependence on electronic aids is dangerous.

Originally, the basis of coastal navigation was considered the three Ls:

LEAD and line (for depth finding.)

LOOKOUT, (that should be obvious and is a legal requirement for all ships.)

LOG, meaning the written log to record all changes in compass heading, estimated speed, and other observations like clouds and wind force; plus the ability to plot a course from this data, on to a chart.

Now, all these navigation operations can be done inside an enclosed cabin, without even ports to look at the sea, by electronic means, pressing buttons, but at great cost in instruments, and total disorientation if the electricity or electronic contacts in those instruments in any way fail.

For offshore navigation one needs a sextant to measure the sun's angle, a chronometer for precise time, and books of navigation tables to provide data to work out one's position on the chart. This takes care, in accurate sun sighting on a moving platform (the boat), care in checking and looking after the chronometer, care in reading the small figures printed in the navigation tables.

'Sat Nav' electronic deep sea navigation requires only the ability to push buttons to get your position; it is marvellous but expensive, and if the electricity fails, without knowledge and the tools of traditional ocean navigation, you are in deep, deep trouble.

During the 1985 London Boat Show I decided to look at the electronic gadgets on behalf of the readers, immediately running into two problems: A) There were so many different firms selling yacht electronics that we would achieve nothing in clarity if we turned this issue into a yacht electronics catalogue. B) It was the *London* Boat Show I was touring and it would add to confusion to study firms that had no international standing. So I selected one firm, 'Seafarer', that I knew had an international profile. I had used their equipment in the form of depth finders satisfactorily, they are in the middle price range of electronic equipment and could act as an *indicator* of what was generally available.

I must make it quite clear, I am not an expert on yacht electronics, I am a consumer. I write only from the point of what is needed to aid the sailor with navigation. It may read, or look, romantic to enter a port 'swinging the lead', shouting "by the mark 2, 3, 5 or 7", indicating the water depth in fathoms, (note, not the depth beneath the keel), but it is laborious, coid water drips run up one's arm and without some practice, the danger of hitting a fellow crew member's head does exist.

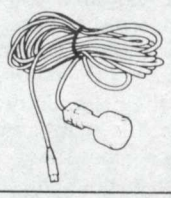
Depthfinders

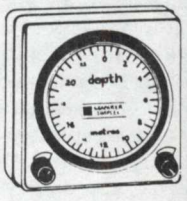
In the 1960s, when the first electronic depth finder came on the market that could, working on a 12v battery, give me depths on a lighted dial inside the cabin, I bought one. It was a 'Seafarer', and it gave me years of good service.

So first I examined Seafarer depth finders and found that they had 5 models, varying in cost from £64 to £150, but only 4 appear to concern us. The cheapest was the new 'Simplex Depth' at £64 which measures depths to 60ft./10fthms/24m. The special feature of this is its small compact size and its, so the salesman said, completely waterproof dial. This makes it suitable for deck mounting on the TIKI, TIKIROA, HINA and HINEMOA range. Its range is only to a depth of 10fthms. Still, it's better than swinging a chunk of lead and I propose to fit one to my 26ft. TIKIROA. It does have, like its bigger sister, an alarm that you can set to warn you if you sail into shallow water.

SIMPLEX DEPTH

Range
0-60 feet
or 0-24 metres
Variable Alarm





The next in the range is the 'Seafarer D800 Digital' with a depth range down to 199ft. or 100m., at £64 a modestly priced instrument.

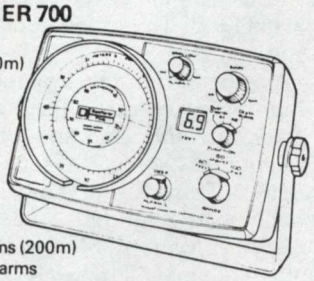
However, my interest was in the deeper ranging depth finders because of their ability to pick up the continental shelves. To follow or detect undersea contour lines is of great help to position finding

in navigation of the type that all our craft bigger than the Coastal Trek Designs need.

There is the 'Seafarer 5', costing £70, with a range down to 60fthms/120m., and the more elaborate 'Seafarer 700', costing £100, that goes down to 100fthms/200m. which has, according to the brochure, 'depth information in 6 modes'! It has a digital readout *and* spinning dial display, alarm for shallow *and* deepwater settings at the same time, and all for £100. We have one on TEHINI. As well as giving us depths, it is a great toy, ideal for electronically minded children as well as dad.

SEAFARER 700

Ranges
0-60 feet (20m)
0-60 metres



0-100 fathoms (200m)
2 Variable Alarms

Logs/Speed indicators

The next thing one needs to know is speed through the water. Nowadays, apart from empty milk tins (ecologically unsound) and knots on a piece of string, there are many methods of measuring boatspeed through the water. They are either mechanical or electrical.

The mechanical trailing logs, from the first famous Matthew Walker log down to the present-day Walker logs, on to the through-the-hull mounted Sumlog and Wasplog etc., have an impeller turning in the water which, by means of a braided line or flexible cable, turns the dial showing the speed (and distance run). They are mechanically simple and generally reliable (I have used a Sumlog for years).

Electric logs work with small paddle wheels or impellers mounted on the hull in an area of clear water flow. The needle or crystal display figures are moved by electricity, which measures the speed of the paddle wheel/impeller. Electric logs, though more expensive, with more to go wrong are more accurate, registering in 1/10th of a knot.

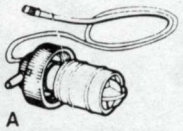
As written in 'The Sea People/Sailorman' No. 3 (Page 14, 'Thoughts on Windward Performance'), this will tell you if you go faster or slower as you trim your sails, most useful for learning the art of sail trimming. For this reason I looked at electronic speed indicators as against mechanical ones. I am coming to believe the first-time sailor needs to know the result of sail trimming nearly as much as his speed and distance run through the water.

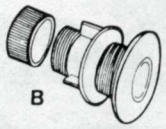
Seafarer have a new electronic log, the 'Simplex Speed' costing £110, which matches in dial/display size their 'Simplex Depth' described above. It registers digitally speeds up to 32 knots including 1/10th of knots and has a distance run display of up to 199 miles. I intend to buy one of these for trying out on my 'Coastal Trek Designs'.

Seafarer also have another new, 'Voyager Speed' log at £160. For the extra money one also gets the readout in average speed over a given time. It even has an alarm to tell you if the speed increases or decreases, ideal warning on night watches for the skipper with an inexperienced crew.

SIMPLEX SPEED DIGITAL LOG

0-32 knots
Distance Run Indicator





It will be seen that it can cost about £260 in electronic instruments to tell ones speed and depth, as against practically nothing making ones own lead from battery plates and chip log from scraps of ply. Having done both, I believe it is worth the peace of mind to spend money on an electronic speed indicator (which can teach you to sail efficiently) and a good depth finder which gives valuable position indication in chart work, as well as warning to avoid grounding.

Radio direction finders

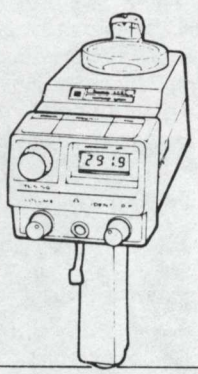
Speed through the water and water depth are basics to navigation. Having covered these electronic basics, I looked at other aids that seem to offer much to the yachtsman. Radio direction finders for example. Instead of guessing, as it were, your position out of sight of land but still in coastal waters (technically called Dead Reckoning or Estimated Position), you have a radio gadget that tunes into the land radio beacons established for big ships and aeroplanes. In thick fog one can get, in theory, several position lines from various beacons, and where they intersect, presto, there you are.

It is not as easy as it sounds. Bob Evans, former P.C.A. chairman, an ex-Navy fighter pilot, is a master at reading radio beacons. We on TEHINI, with our 'ancient' Seafarer radio direction finder, found the results very doubtful.

The two *new* hand-held radio direction finders on the market by Seafarer look like ray guns out of a science fiction film. Here are the descriptions:

SEAFIX 2000 RDF

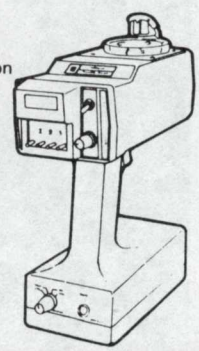
Frequency Range
200-420 KHz
Liquid Damped Compass
Digital LCD Tuning
Beta Light Illumination



Price £140

SEABEAM II RDF

Synthesised Receiver
Digital Frequency Selection
Frequency Range
180-420 KHz
Visual and Audio Null
Quartz Beacon Timer
Liquid Damped Compass



Price £220

I am not competent enough to comment on these instruments, I have read articles in yachting magazines on various problems associated with hand-held radio direction finders. So please, any reader with experience of these instruments (any make), write to 'The Sea People/ Sailorman', telling us of your practical experience.

VHF radios

Whilst on the subject of radio waves, beyond the RDF sets on the Stand was that most useful double-edged tool – the VHF radio. How many unwilling people have been conned onto a boat voyage with: "You don't have to worry, we have a radio to signal for help if anything goes wrong"?

VHF radios have a range, depending on the height of the aerial, of up to 40 miles. Compared to the previous radio communication sets used on yachts they are easy to operate, though the old sets (medium wave) did have greater range.

A VHF radio enables you to communicate with passing ships, friends on other yachts, connect into the telephone service, call harbour authorities on approach into crowded harbours "is the channel clear to enter?", listen to fishermen lying and blaspheming.

It is an extremely valuable tool. However, some of us refer to it as the 'gabble box', it exerts a magnetic influence on people to broadcast intimate life details to all with radios, or more boring, to drivel on about nothing.

Its dangers are as follows: It behoves the day or coastal sailor to check up on weather reports *before* he goes to sea. With VHF, increasing numbers of people wait until they get to sea, then ring up the coastguard saying "what is the weather situation?". Some, instead of navigating, ring up saying "help, I am lost, where am I?", others shout for medical and lifeboat help before considering seamanship and common sense. The classic in some parts of the world is "help, I have run out of fuel". The end result of yachtsmen using the VHF radio not as a professional tool but as a welfare help service will be new regulations for yachtsmen, demands for 'studied' professional qualifications before they can sail out to sea.

Seafarer has 2 VHF sets, the 'Seavoice RT 525' at £259, and the 'Seavoice RT 550' at £340.

It amazes me how much some people spend on electronics. As a designer, I wish they were prepared to spend as much on 'Boat Plans'.

Sea Safety

Life rafts

by J.W.

A question increasingly asked is 'do I need to carry a liferaft aboard my Wharram catamaran?' The reason for this is that during the last 10 to 15 years all monohull racing yachts have been obliged under racing rules to carry an inflatable liferaft. For, as is well known, if a monohull capsizes it fills with water and sinks like a stone (not all, some new monohull designs now have built in buoyancy).

By 1979 hundreds of yachts following the racing yachts example carried what the owner thought was absolute sea survival safety, an inflatable liferaft. I was one of those owners. Since 1960 I always carried a liferaft on my RONGO/TEHINI/PAHI 35. Always under the assumption that 'when the day came I was safe' until the 1979 Fastnet Race, when the offshore racing fleet was hit by bad gales and seas in the Western Approaches (between Lands End and Southern Ireland), off the Fastnet Rock. It was chaos, with some yachts suffering structural damage, others capsizing, damaged and capsized yachts filling with water and the crews taking to the 'recommended' inflatable liferafts. From chaos it turned to disaster, for the 'recommended', by compulsory requirements, inflatable liferafts were not up to the job, either structurally, i.e. some came apart, or design wise in that it was difficult to haul an unconscious man aboard, and above all, some CAPSIZED.

Following the Fastnet disaster, government bodies in Britain and Iceland did tests on inflatable liferafts and from lessons learnt, made urgent recommendations on how inflatable liferafts should be re-designed for the purpose the yachtsman buys them for!

It certainly gave me food for thought. From the government tests and observations it became quite clear that our catamarans, with the sails down and a suitable sea anchor out, made ideal liferafts. Why this should have come as a surprise shows how propaganda from standard writing in yacht magazines eventually gets through, even to the convinced.

It must be remembered, I was an Atlantic pioneer in offshore catamarans, so with no prejudices on 'multihulls', I originally saw them in their polynesian simplicity as two canoes joined into a stable RAFT shape. The Kon Tiki raft had, 6 years before my first 23'6" Tangaroa/40' Rongo voyages, shown raft safety, and the annals of the sea had story after story of sailing ships sinking and the crews taking safely to rafts made from the spars.

However, it is not just storms that give damage to small boats at sea.

1. There is floating debris. Against that damage all our designs have some watertight bulkheads, but they could all be holed.
2. Fire. This damage I fear most. Again, all owners should carry several fire extinguishers. But a gas blow up happens so fast.
3. Collision with a commercial vessel that unaware steams on and leaves a smashed boat behind. We know this can happen for a few years ago a Tangaroa Mk. IV was run down in broad daylight in the Bay of Biscay by a super tanker. The wreckage of the Tangaroa held together for over an hour until the tanker manoeuvred to pick the solo sailor/owner up. Though years ago an ORO, run down off South Africa the same way, was unobserved and the crew lost.
4. There are rocks and reefs in all oceans that you can ground and lose the boat on, not always is there immediate help at hand.

Liferafts, as a result of the new safety improvements, cost even more. Many people, noticing the similarity between the small inflatable liferaft and the inflatable dinghy have wondered; is it possible to combine the two types, an inflatable dinghy that could serve as a liferaft? With the advantage, that you have an inflatable dinghy in port, *and* a liferaft in times of danger. Even better if the dinghy could have a sail, instead of drifting around in the deep ocean after your fire, hitting wreckage or having been run down, you could SAIL to the nearest shipping lane.

There have been several attempts to do this. The one that is the most developed, has had most testing, is the 'Tinker' designed by Fred Benyon-Tinker*. Here is the description from their brochure:

TESTED TO 70 KNOTS

Everyone is aware of the hazards to which yachtsmen are exposed in the event that they have to abandon ship.

The 1979 Fastnet Race disaster caused considerable public concern and for our part we investigated the practibility of Tinker inflatables fulfilling a survival role.

As part of our development and test programme, we carried out a series of trials at the NMI wind and wave tank at Teddington. Nearly 200 tank tests were made of Tramps and Travellers, using scale models under guidance from Dr. J. A. B. Wills and Mr. R. L. Cole, the authors of the NMI report R123 in which the results of tests concerning the stability of conventional life rafts were carried out at Teddington and which were subsequently "proved" off Iceland in wave heights of 5 to 10 metres, and wind strengths of between 45 and 55 knots. The NMI Report TN63 deals with the latter tests.

The results we obtained are indicated in the graph, (see loose insert) and can be summarised by the following three statements.

(1) Both Tramp and Traveller models can be expected to survive winds of over 70 knots and the equivalent sea conditions when they drift beam on to wind and sea

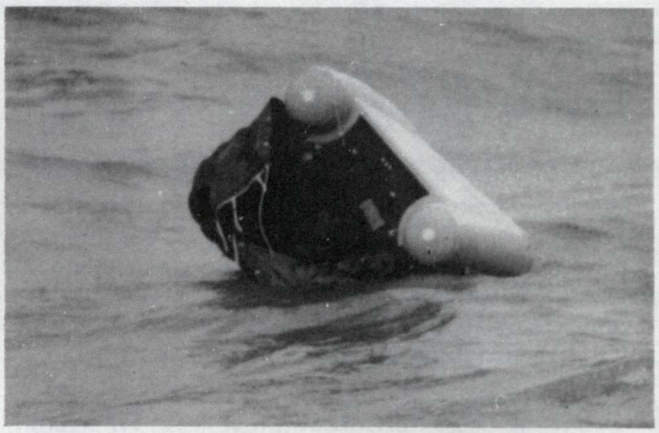
(2) An NMI designed sea anchor streamed deep in the water is a vital item of equipment

(3) The crew weight should be kept as low as possible in the boat and to the windward side.

Both the Tramp and Traveller can be stowed on deck semi-inflated or completely deflated and folded up. Even with both the outer tubes deflated you have an emergency craft capable of

* Available from J.M. Henshaw (Marine) Ltd., Verrington Lodge, Wincanton, Somerset, England BA9 8BN. Tel. (0963) 33237.

With the canopy fully inflated and sea anchor deployed, the Tinker lies beam to the wind and sea, which reduces the chance of yawing and capsizing.



In the event of a capsize, the buoyant canopy becomes the 'floor' of the raft until the crew rights the vessel using their own weight. No more than three or four pints of water remain on board.

supporting a full crew immediately ready for use.

With the inner tubes **only** inflated you can launch the boats and they provide an excellent means of recovering a man overboard.

THE SURVIVAL PACK

The equipment required to satisfy modern requirements is fully available. It comprises a survival canopy – we have two models available. One comprising a waterproof tailored cover erected on rigid plastic tubing. The other is a fully inflatable canopy which provides the added advantage of at least 4" (100mm) of air insulation around the crew. It is fully self-supporting when inflated, packs into small dimensions, and provides important protection against hypothermia.

The inflatable survival canopy also gives over 700lbs. (300kgs.) of buoyancy. Tests have shown that with this canopy neither the Tramp nor the Traveller will lie up-side-down in the unlikely event of a capsize. Instead, they will lie on their sides, the canopy supporting the crew and barely awash. If the crew then move their weight towards the floor of the boat and start a gentle "rocking" motion, the boat will right herself.

The boats can be boarded from the water easily over either side of the bow. Unconcious bodies can be recovered in the same manner.

Rapid inflation is ensured by the addition of a CO_2 system, comprising two cylinders secured to the transom, which are connected to the outer buoyancy tubes by two lengths of flexible pipe and two special valves which prevent the tube from deflating once the rapid inflation system has been triggered. The CO_2 bottles can be easily removed for storage in warm, dry surroundings, and can be weighed and refilled should any loss of weight occur.

The most vital item is a sea anchor designed by the National Maritime Institute which should be streamed both to reduce drift and to correctly present the Tinker beam on to the wind and waves in the safest attitude.

Here is an extract from an article about the 'Tinker' by Geoff Hales, a well known British sailor and writer (multihulls included), as originally written in 'Cruising World', December 1984:

The Problems with Life Rafts

If one were to list his reservations about life rafts, the following items might be included:

- Risk of overturning in heavy seas, trapping the occupants.
- Difficult to right when capsized.
- Difficult to reboard, due to height above water and because with the weight at the lee end, the chance of the raft capsizing is increased due to wind lifting the exposed windward end.
- Very difficult for one occupant to provide sufficient weight to stop the wind from getting beneath the raft and flipping it over (unless it is a one or two person raft).
- Susceptible to tears and leaks in bad weather.
- Expensive maintenance with no guarantee that when it is actually released from its canister it will work.

The Tinker Alternative

No one can guarantee to have solved all these problems but the improved Tinker design has greatly reduced the risk of most of them occuring at all. For example:

- Tinkers use an NMI-drogue that cannot tangle, and which has a much better chance than the other models of keeping tension on the line, thus holding the boat more securely.
- Because the drogue is streamed from the side of the "boat-shaped" craft, the weather side cannot lift and the wind cannot get beneath it, except in extreme conditions. Tank tests supervised by the NMI have shown that life rafts capsize in much lower winds than Tinkers.
- The Tinker inflatable canopy has *more* buoyancy than the four-compartment hulls (complete with their solid floor), so in the event of capsizing there is enough buoyancy for at least two people to sit on the "roof" and be clear of the water. It is easy for one person to right the boat by simply leaning against the floor from inside the boat.
- In contrast with the difficulty in climbing over the side of a life raft, it's easy to climb into the Tinker over the bow which, though low, still has ample buoyancy to support one person.
- Because the Tinker (with canopy easily removed) is also your everyday dinghy, you know how it works and that it was recently serviced – when you last used it.
- The Tinker takes perhaps 10 minutes to convert from a tender to a life raft (this should be done as part of the routine preparations for going to sea), so it is little effort to practice in warm, pleasant conditions whenever it suits you.
- Although not inexpensive, the Tinker costs less than a typical inflatable dinghy and life raft. It has won a *Yachting World* magazine One-Of-A-Kind Rally and a Design Council Award. Tinkers are used, 12 months of the year, by the Trinity House Lighthouse Service, which says a lot for construction and reliability.
- If you take the sailing rig when you abandon ship, once the storm has abated you can sail towards your best chance of rescue.
- In the happy event that you do not need to use it as a lifeboat, you still have a first-class, inflatable, power and sailing dinghy.

As Geoff Hales points out, the 'Tinker' inflatable sailing dinghy/liferaft is not cheap. It is however cheaper than an inflatable dinghy *plus* a liferaft. It also saves money over the years, in that you personally check its seaworthiness, and survival equipment instead of, like the standard liferaft, having to return it to the manufacturer or agent for an annual re-check.

I have drawn our readers' attention to the 'Tinker' because it is *the* well tested dinghy/liferaft on the market. It may well be that readers have developed or will develop alternative self-built systems for Wharram designs. Any suitable ideas will be given column space in the Sea People/Sailorman.

Crafts

A large part of my life I have lived near or in a fishing port. So the use of netting bought cheaply from 'net ends' became second nature. We have used it on 'TEHINI' for food 'hammocks/shelves', to suspend cheese, bread, cabbages; strung it in the bilges to rest clothes on, letting the air circulate to keep them fresh. Others have used it with children on board as 'fences' to stop them falling overboard. The use of netting on Wharram catamarans is endless.

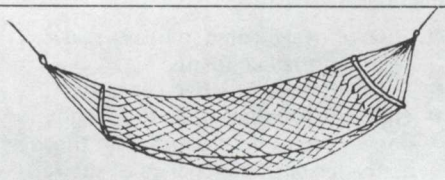
From the 1985 Paris Boat Show Ruth Wharram brought back a brochure of a French company that sold nets, with photos of its many uses: hammock seats, sail stowage bags, and so on.

Netting can be difficult and expensive to obtain if you do not live near a fishing port. The alternative is to make it yourself and it is, once the method is known, easier than knitting *(certainly a lot easier than the engine section - J.W.)*

In one of those coincidences that to some ways of thinking are *not* coincidences, Tim Francis turned up at the Wharram Stand at the London Boat Show with a beautifully prepared article on net making. Here it is. It is, I hope, the first of many 'craft' articles that will enable readers to embellish their boat, and perhaps give possibilities to earn money in the yacht anchorages or marinas.

Net Making

by Tim Francis



Nets are one of the most universally useful items on board a boat: Safety nets, to prevent people and gear going overboard, for storing personal possessions and gear below deck, stringing up fresh fruit and vegetables in the galley, etc. But how many of us know how, or have ever tried to construct our own nets. The task is not a difficult one, providing a little fore thought and planning is given.

Here is the basic technique

The only tools required for net making which will not be found in your rope kit are the mesh gauge and the shuttles for carrying the cordage. The mesh gauge, which can easily be constructed from wood, perspex or metal, is usually 12" – 18" in length, looking not unlike a ruler. The only difference being the gauge should have convex surfaces and well sanded edges. This helps when advancing the gauge through the mesh as you work. The shuttles can be made from the same materials, although perspex and metal are more durable and last longer. It is advisable to have several shuttles so that it is possible to work without pausing to reload more cord. The dimensions of the shuttle will usually be around 12" long, the width being the same or just smaller than that of the mesh gauge.

The width of the gauge is governed by the desired size of the mesh.

To discover the dimensions, measure the distance from the top to the bottom of the mesh diamond: the width of the gauge will be about 40–45% of the diamond length, depending on the thickness and degree of convex curvature. For example: a diamond measuring 2 3/4" x 2 1/8" will have a gauge 1 1/8" to 1 1/4" wide.

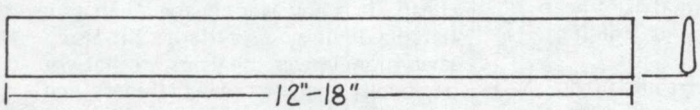
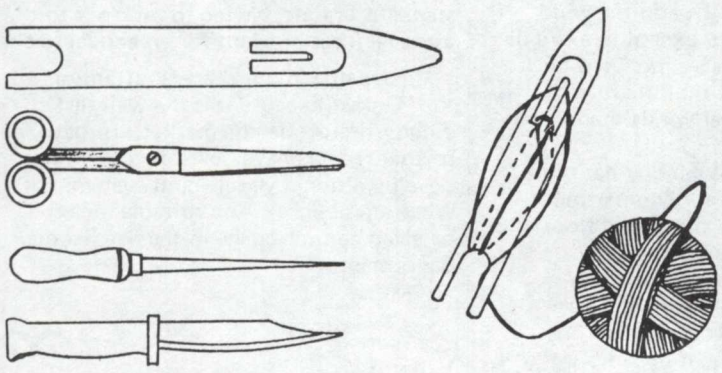


fig. 1.



Netmaking tools: Mesh gauge, Shuttle Knife etc.

It is important to note that the width of the diamond *must* be 50–60% of the length, so as to make the angle at the base of the V less than 90 degrees. If the angle is more than 90°, the knot will work loose under load.

Deciding upon the correct mesh size is probably the most difficult part of net making: Make the mesh too small, and it will take much longer to make and push up the cost. A mesh size too large could spell disaster, allowing feet to become jammed in the mesh – not at all desirable when doing a rapid sail change because of an approaching squall. Draw the dimensions out on paper or make a few trial rows with string or cord to make sure the size is right. If in doubt make the mesh a little smaller. Remember that the diamond if stretched lengthways, the width reduces, and the length increases: an apparently safe 2 3/4" x 2 1/8" becomes 3 1/2" – big enough to trap an unwary foot.

Cordage for netmaking includes both the manmade and natural fibres, so it will be the use of the net which will determine the final choice. If the net has to be used externally for safety nets between the two hulls, where it will be exposed to the elements, especially sea water, then materials such as nylon or poly propylene type cord would be better suited. Natural fibres can be used externally providing that they are regularly treated with a Cuprinol and tar preparation or cutched in a bark solution. The primary uses of cotton and natural fibres are for interior functions such as bunk/personal storage nets. Small hanging galley nets for fresh produce are best made from manmade materials as these are easier to clean, sterilise and dry should something become over-ripe and go mouldy.

And so to the actual net construction: The principle knot used in nets is the sheetbend or weavers knot, (diagram 2). It is easy to make and adjust, and has very good holding power. A flat or reef knot is sometimes used, more on smaller nets using natural fibres, but in comparison with a sheetbend, flat knots have a tendency to slip or slacken. For that reason, only sheetbend techniques are shown here.

For most applications, a boltrope should be employed: This simply is a stout rope running around the perimeter of the net, giving both form and shape, as well as providing a good anchoring point when it comes to mounting. This rope should be carefully measured to fit the required area, and the two ends spliced together. The net is made onto the boltrope by using clovehitches, constructed in such a way as to put the knot on the outside of the rope: In this way, any tension placed on the net will tighten the clovehitches, rather than work loose if tied in the conventional way.

fig. 2.

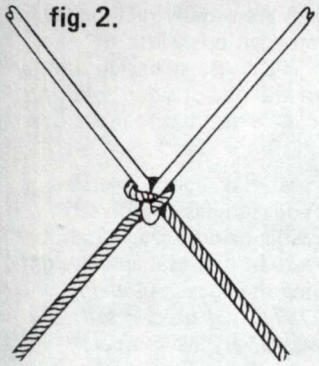
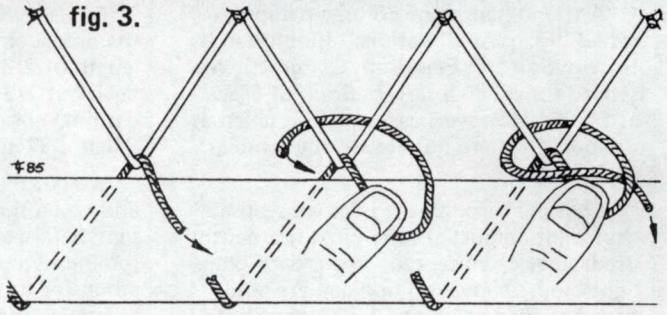
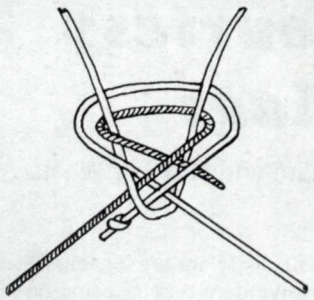


fig. 3.



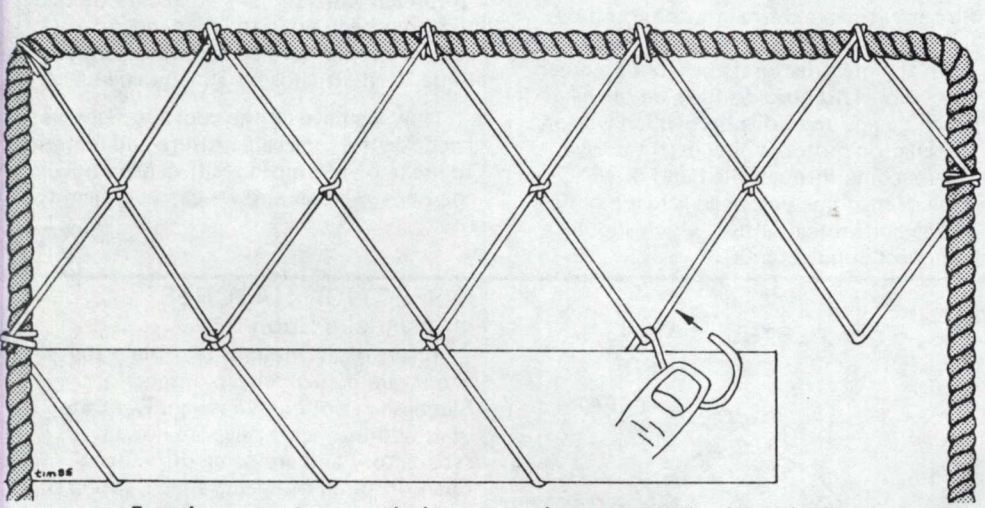
Sheetbend or Weaver's knot – above, three stages of the construction. Left – the completed knot.

fig. 4.



Introducing a new line.

To start the net, first tie an external clovehitch onto the top lefthand corner of the boltrope, securing the short end with a hitch, reef or similar knot, then take the cord around the front of the gauge, back up to the boltrope and make another clovehitch, carefully measuring the distance between the two knots, making it equal to the width of the mesh diamond. Continue along the boltrope measuring and tying as you go until you arrive at the end of the first line. Place an external clovehitch on the vertical or side boltrope in-line with the top of the mesh gauge and proceed to the next row.



Forming a net on a boltrope, using external clovehitches.

Depending on the size of the net, you can either turn the net over and continue working left to right (in the case of right-handed people), or in the case of a large safety net where it is not practical to over-turn the work, work the second row backwards right to left (not so easy unless you are ambidexterous). The second and subsequent rows are tied using sheetbend knots, tied to the loops formed on the boltrope. To tie a sheetbend, take the cord behind the gauge (see diagram 3) and through the loop, using your thumb to secure the cord whilst you take the shuttle behind the loop and back through the hitch held by the thumb. Once the cord has been passed through, carefully tighten the knot, making sure that the tension is kept on the cord around the gauge, and that the cord behind the loop is kept above the overall knot: This will prevent the knot from slipping.

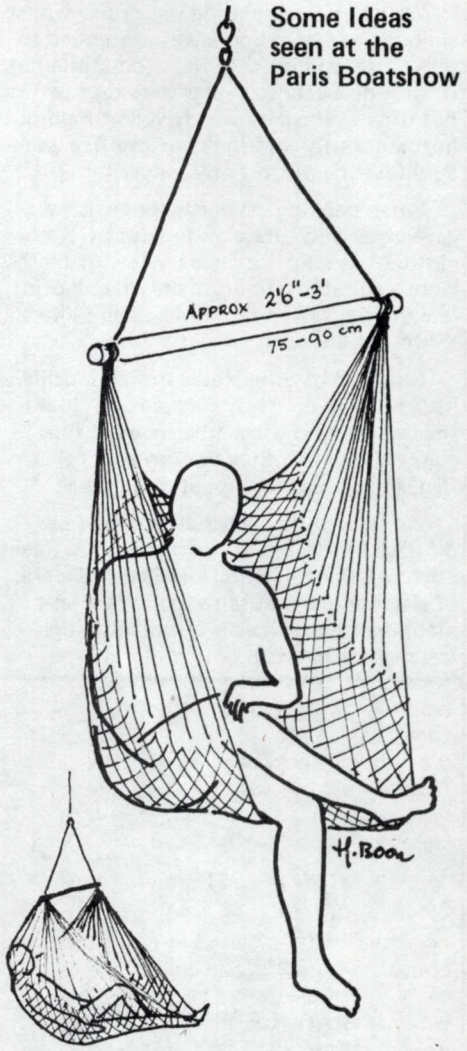
Sooner or later, you will run out of cord on the shuttle and will need to introduce new cord. Put a stopper knot (overhand or similar) on the new line and thread it into the last knot (see diagram 4). Trim any surplus from the old cord and continue with the rows until you run out of either cord or net.

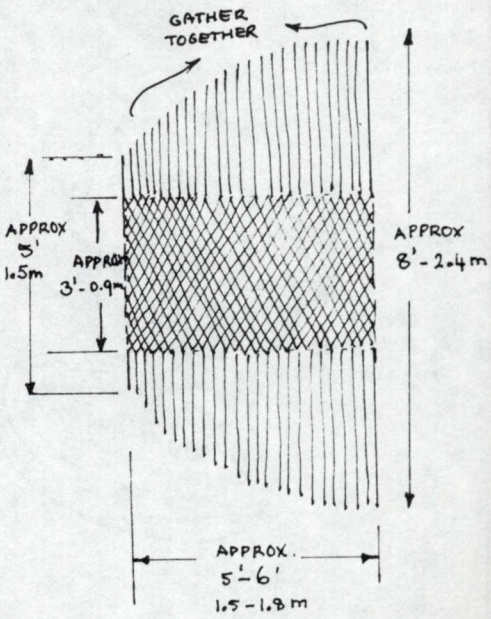
In the case of some safety nets slung between the hulls, you may need to taper the net as you work aft: This requires dropping a loop every four or five rows, depending on the amount of reducing required (similar technique to reducing knitting). To do this, first tie the sheet-bend on the last loop before the reduction point, and, instead of making another loop, backtrack to the loop which you just made and tie it to the boltrope with a clovehitch before continuing the next loop as normal on the next row.

A similar method is used to create a gap, at the edge of the net (a triangular hole with the net on two sides and boltrope on the third), through which the anchor may be lowered. At the apex where the space is required, make a sheet-bend as-per-normal, then backtrack down the loop and make a clovehitch before starting a new row away from the space. Continue to reduce each line by one loop every time you arrive at the anchor space. When one side is completed as far as the Boltrope, return to the apex and introduce a new cord into the sheetbend as done for a full shuttle, and start a new row of loops in the opposite direction, again remembering to reduce the row each time at the space.

Finally, if you do not feel that you have the confidence to tackle a fullsized safety net right away, you could practice on minor storage nets or create a hammock to gain experience – it isn't a difficult art to learn or perform: in fact, it's as rewarding as any of the decorative rope-work with the bonus of producing a very practical article with many applications.

Some Ideas seen at the Paris Boatshow





Courtesy Flags

by Tim and Heather Whelan

Courtesy flags are a necessary but expensive item on a cruising boat and therefore many of those who live aboard or cruise extensively have to make their own.

We had been planning our cruise whilst we built our boat and always intended to make a set of courtesy flags sometime but it was one of those things that kept getting put off. Eventually we arrived at Falmouth, heading south, and the courtesy flag issue could not be put off any longer.

When packing up our belongings we gave away and threw away a lot of clothes but surprisingly very few of these were a suitable colour, mainly being prints. Making flags from rags didn't seem like a lot of fun anyway!

Chatting to other folks in Falmouth we heard lots of courtesy flag stories: like the couple who use a stiff sheet of fibre glass onto which they crayon whichever flag is needed, and wipe it clean later.

We looked through Reeds which has 30 flags illustrated but of those only Spain, Portugal, Panama and New Zealand were of any immediate use to us. (We aren't planning to visit Iceland, Indonesia or Ireland at present.)

A friend had spent £5 on a pamphlet called "Flags of all nations" (published by Brown, Son and Ferguson, Glasgow.) We settled for the "Observers Book of Flags" at £1.95. However, care must be taken as national flags are not always the same as civil ensigns.

Looking through the flags we realised that eight colours are the most frequently used: black, white, red, green, dark blue, light blue, yellow and orange. We could have bought cotton at £1.70 a yard but decided to buy spinnaker nylon at £2.00 a yard from a sail loft. (They sell courtesy flags at about £9.00 a time, as opposed to £12.00 in the chandlers.)

Equipped with the nylon and our book of flags we set to work. We have aboard a Bernina sewing machine which we run from our generator. We searched high and low for a hand machine that would sew straight stitch and zigzag but the task was fruitless. At last we decided to buy a small generator and keep our electric sewing machine.

Some friends did however locate a hand zigzag machine called Alfa but we could not get hold of the manufacturers. An old style model, such as Jones or Singer with an external motor could be adapted if you obtain the hand mechanism from the manufacturers or from an older machine. This bolts to the side of the machine and the drive belt which was on the electric motor is now used to drive the machine through the hand drive. The type of machine you need is just a basic zigzag and straight stitch which should only cost about £65.00.

Courtesy flags are usually rectangular; the most common ratio is width to length of 2:3. The courtesy ensign should be about 1/3 of the size of your boat's national ensign. We decided to make ours 24cm x 37cm. (10in x 15in.)

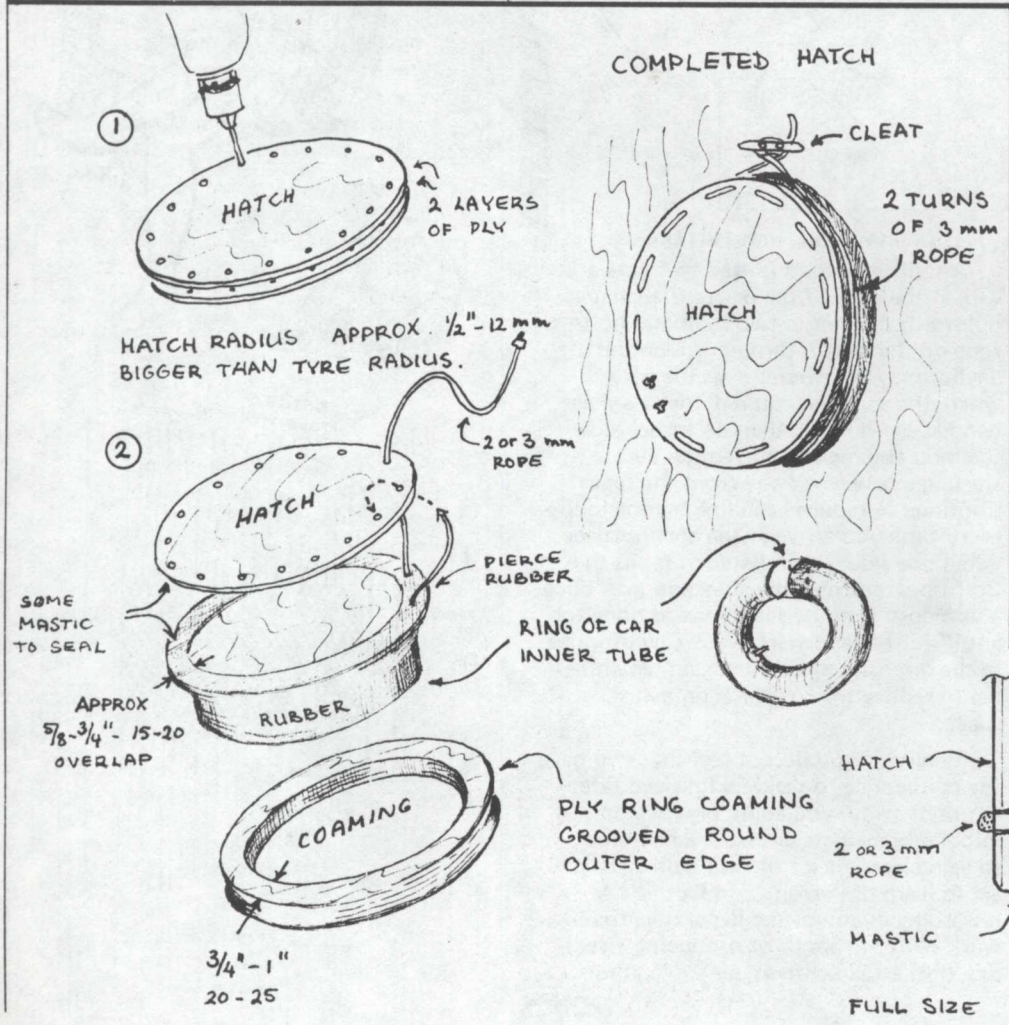
We cut the material slightly oversize and taped the edges together with sello-tape before sewing, using zigzag stitch for joining two pieces of material and straight stitch for turning the edges. *(Glueing seams with 'BOSTIC', as used in sail-making, also works very well - Ed.)*

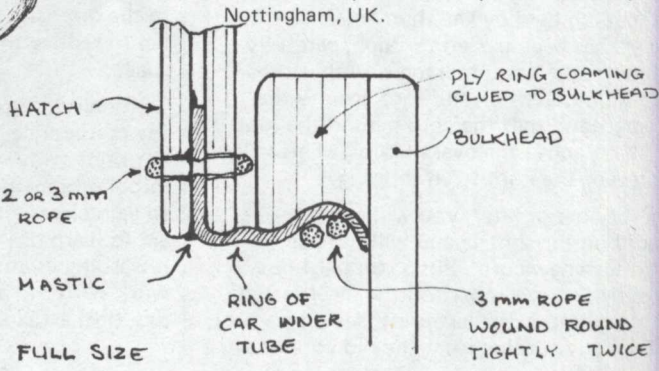
In making the Portuguese flag we had an unusual problem as it has a circular emblem. This could have been embroidered on with a zigzag stitch or with a separate piece of material, but we traced the design on and filled it in with fabric crayons. These are permanent when ironed.

The sleeve was 8cm. (3in.) wide, turned over and taped in place before being sewn. A piece of nylon cord was then threaded through and a toggle tied to the top to ensure that the flag is flown the right way up.

A courtesy flag should be flown in a conspicuous position whenever sailing in foreign waters. Take great care though that you keep up with independencies; several people were caught out when the Cape Verde Islands became independent.

Now we have all the courtesy flags we need for the forseeable future and material to make plenty more. All we need now is the right weather and we can put them to use.





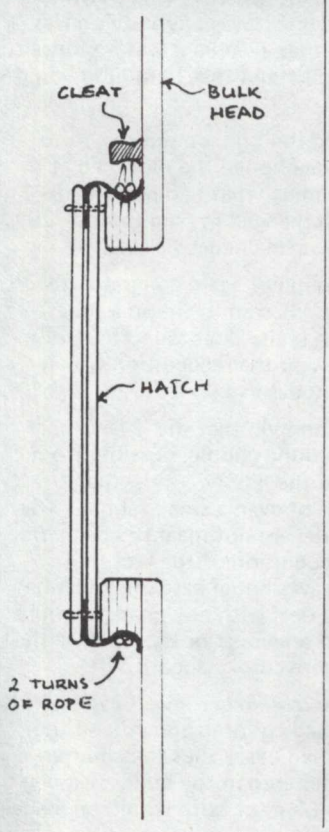
INSPECTION HATCHES
by Hanneke Boon

I have often thought that the water-proof qualities of 'cheap' inspection hatches are not good enough. Even the ones with rubber O-rings are not always satisfactory and are often difficult to open. Inspired by seeing a new, specialist designed canoe hatch,* I thought our builders could actually make their own, with the added advantage of being able to make them different sizes.

The size of the hatch is determined by the size of rubber ring. By using different size car or lorry inner tubes the size can be varied. I can even see them being made using a small bicycle inner tube in its entirety to make a bigger hatch.

If anybody would like to suggest modifications or further ideas on this theme please let us know.

* V.C.P. watertight hatches by Valley Canoe Products Ltd., Private Rd 4, Colwich Estate, Nottingham, UK.



Sign Writing

by Tim Whelan

We found choosing a name for our boat hard, painting the name on was easier. We originally used self adhesive lettering but as soon as we had time we looked for a more individual style of lettering, in keeping with our boat, a NARAI Mk IV. and its name 'Ika Roa' which is polynesian for the milky way.

We considered carving name boards but felt a painted name would be more legible. A friend lent us a 'letraset' book of lettering styles which showed hundreds of typefaces covering all styles and types.

We picked out several we liked and tried them out on sheets of paper. We altered some slightly but felt it was not advisable to deviate from the lettering too much as this might result in strange looking alterations when the letters were enlarged.

We spent a few weeks considering which style we preferred. Some we rejected when we recognised the lettering as that used by certain firms and shops, in fact we began to see lettering styles everywhere. Finally we chose one style. We used an overhead projector to enlarge the letters to the size required and made templates of them. (A pantograph or graph paper can be used to enlarge letters but if an overhead projector can be borrowed this makes the task much easier.)

The size of the lettering varies depending on the size of the boat and the position it is to be in. Ours was six inches high as this fitted nicely on our bulwarks between the scuppers.

We drew round the template on a sheet of thick card, spacing the letters by eye as exactly equal spacing can look strange in some typefaces. Using a Stanley knife we carefully cut out the stencil of the name, holding the knife so the blade, not the point, does the cutting. This prevents any tearing of the edge. When cutting the stencil any 'islands' are held in place with thin strips of card.

The stencil was then taped in place on the bulwarks and traced round with a felt-tip pen. (photograph 1). The paintwork inside the area outlined was then carefully rubbed down and painted using a small long-haired paint brush. This enables the painter to follow the sweep of each letter, four or five inches at a time, which helps produce a smooth edge. We used black paint on our mediterranean blue bulwarks. (photograph 2). The process was then repeated on the opposite hull and 'Ika Roa' was named for all to see. (photograph 3).

What's New!?

Attenders at the 1985 A.G.M. will remember Maurice Killen as a very determined individual. He has built a superb TIKI 21, trailed it to and sailed it in the Mediterranean; sailed it 'hard' with the assistance of one of the P.C.A.'s top racing sailors, Paul Wells. So his account, his criticisms, his solutions and suggestions make a valuable addition to this edition of 'The Sea People/ Sailorman'.

Maurice Killen at the helm of SASSI 3 sailing a comfortable 4 knots on a beautiful day, bottom end Force 3. Note the rolled up canvas hatch.

SASSI 3

TIKI 21 Modifications

by Maurice Killen

You will remember that last year's sailing was somewhat curtailed by a broken mast. Sailing in the Golfe du Lyon can from time to time be somewhat difficult. Anyway this year I have an Aluminium mast, but more of that later when I tell you about the various modifications made to 'SASSI 3' my TIKI 21.

Paul and I sailed up and down the coast near Port Gruissan for the first few days finalising some of the changes in rigging etc. From Port La Nouvelle to the south to Cap d'Agde in the north on a day-sailing basis.

On one occasion we sailed from Gruissan to Port La Nouvelle on the tail of a Catamaran of French design, she was about 30'0" and really ugly, sorry cannot tell you the class. Looks a bit like a camel in profile. Anyway she only gained any ground in light airs. We really were pleased with the performance of SASSI. After pulling up on the beach for lunch and a sunbath, trust us to find the Naturist beach, the full frontal is just a tiny bit offputting with the sandwiches and a can of beer, *(why, ed)* we continued on to the Port entrance from where we timed the run back. A distance of 8 miles in 50 minutes, an average of 9.6 knots over the 50 minutes. Without trying really. Wind strength about force 4.

Leaving my wife and daughter in Gruissan we then sailed South down the French coast with the intention of sailing to Palamos on the Costa Brava and from there to Majorca. Ambitious in the time available to us, 10 days liberty. Anyway we had some really good sailing, but the farther South we got the lighter the winds we encountered and we got as far as La Escala at the southern end of the Golfo De Rosas. Coastal Trekking all the way, beaching in small bays for lunch at tiny restaurants and bars, the grilled sardines and fresh salads were really superb and cheap. Larger bays or small ports were used for our evening and overnight stays. Distance sailed something over 280 miles. Gruissan La Escala and return.

No dangerous or extraordinary feats to report, although we had some funny moments and a little rough weather. Funny, we sailed into Colliure on the first night out, the beach is in the centre of the town, onwards and onwards towards the shingle and aiming straight for the terrace of the biggest restaurant which was crowded with diners. Everybody became a spectator, and we beached close enough to order two beers without raising our voices.

On the way back we had planned to explore the coastline off the Golfo de Rosas, however conditions were so good that we continued north putting into Cadaques for the night. This was a really splendid day's sail, unfortunately the wind as usual died out in the early evening and we motored on the faithfull Seagull into Port.

In all the 'voyage' lasted nine days and we slept aboard every night, some of them more comfortable than others.

Maximum wind strength encountered about Force 7, a bit more in the gusts. Wave height 10–12 feet with the occasional big hole that we fell into.

On one occasion we were bounced up and down a stony beach in the harbour of Puerto de la Selva from midnight until dawn. Finally sitting on the beach and pulling the boat up further as the wind, a good force 6, pushed more and more sea into the harbour. Fortunately there was no damage to the hulls except for a large area of paint which was literally ground off.

At no time did SASSI 3 feel unsafe and when we took down a reef it was for comfort more than safety. At 12 knots plus she does get a teeny-weeny bit wet. The Log 0–10 knots was 'off the clock' so often that it eventually packed-up, failing to register at all at slow speeds. What our maximum speed was is difficult to say but the needle was hard against the stop frequently. And when surfing down the 'big ones' well this was anybody's guess. If I tell you that even Paul was impressed you will understand that I am not gilding the lily.

Regarding the Log, on our return to the U.K. I telephoned the nice men at WASP explaining what had happened. They part-exchanged my log for a 0–20 knot model at small cost.

In closing may I again congratulate you and the Wharram team on a superb design which really does sail! Hopefully it will bring you the recognition which you all richly deserve.

I do feel though that the '21' is more suited to a young couple, possibly from the 'teens to the late twenty's, than the sailing needs of even a small family. The above remarks are not meant as criticism, merely a recognition of the fact that when one leaves home base one must be equipped to deal with any changes in the weather and one must or should have the full cruising inventory aboard.

From my own experience I can tell you that if one had children aboard and the weather turned nasty thus the children would be sheltered in the hulls, meaning that Dad or Mum or both would be manag-

ing the boat from on deck, it would not be very long before cold and fatigue started to take its toll. All concerned would then be in danger. I have not put this very well but with your experience I am sure you see what I mean. Or is it perhaps that I am just getting old!!

No Maurice, you are not getting old, just getting sense. A few weeks ago I was going like a bat out of hell off Europa Point, Gibraltar, on **my** *TIKI 21, in Gibraltar's famous tiderips, whirlpools and eddies, in a force 7. The boat was stable and I had the jib down, but I agree, it was no place for young children! There was lashing spray everywhere. As I am about to enter the young family stage, what are my solutions?*

1. *is to take much more notice of the weather and sail within 1 or 2 hours of a sheltered anchorage, i.e. 5—10 miles.*
2. *have reef points in the jib or, like Mike Ricks, a smaller jib; and two lines of reef points in the mainsail so as to slow the boat down to less spray making speeds.*

The TIKI 21 was designed for 'gunkholing' which in America means sailing up creeks and estuaries with always a safe easy shelter at hand.

One reason for designing the TIKI 26 was that it **has** *more* **enclosed shelter.** *I will be discussing this problem of young family sailing on fast trailer/sailers on the 'Racing' page, with reference to Micro Multihulls.*

I will disagree with Maurice that the TIKI 21 is a late teens to twenties boat. Like Maurice, I am well past my twenties in age and my TIKI 21 gives me enormous fun! And after all, he is planning a 20% increased RACING RIG for his TIKI 21, and I am encouraging him!

Modifications/Improvements made by Maurice Killen:

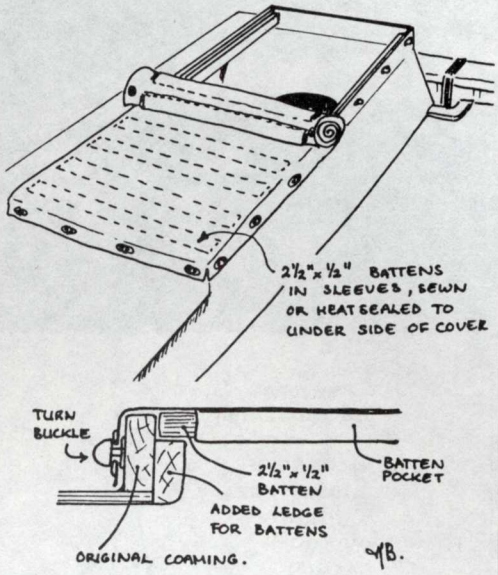
Mast

First the Mast. I bought an aluminium tube 10cm. outside diam. with a 4mm. wall thickness, into which I inserted the ends of the original wooden mast. This meant that I could use the same rigging etc. I made the Mast 45cm. longer to improve visibility under the Mainsail. The throat halyard is now set up leaving enough room to really peak-up the peak when necessary and at the same time the Luff down-haul brings the foot down to just the right height for perfect visibility. The Shrouds and Forestay were lengthened with s/s strops.

Hatches

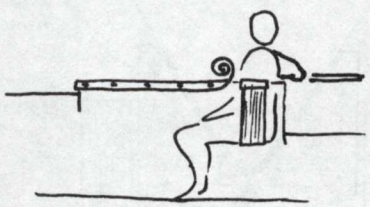
I had also found that when managing the boat from the deck one was very exposed to the weather and even in the Med. one soon gets very cold when wet. And so I determined to manage the boat from the shelter of either hull. To this end I replaced the wooden hatches with plastic coated Terylene covers. I had found that manipulating the wooden hatches was a bit of a hassle in a blow. Anyway the aprons/hatches now roll forward or back very simply, they are not cumbersome, they are secure and extremely flexible in use. The insides are sleeved and have 2½" x ½" wooden battens inserted, which rest on runners placed on the inside of the 'cabin/cockpit' coamings. They bear sitting on — but standing on them is 'VERBOTEN'!

When the weather really deteriorates these covers/aprons offer protection almost up to one's neck.

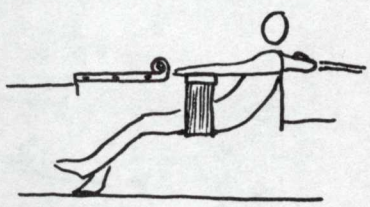


Seats

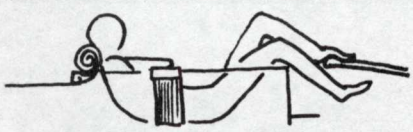
Seating was also improved with a Hammock-type seat made of deck-chair canvas, movable and supported on the sides of the cockpit. The seat is movable for steering or leisure positions and on fine days with the covers off a child and an adult can sit in tandem.



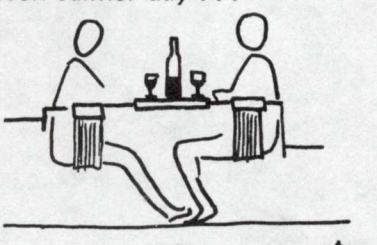
steering . . .



on a calm day . . .



an even calmer day . . .



flat calm?

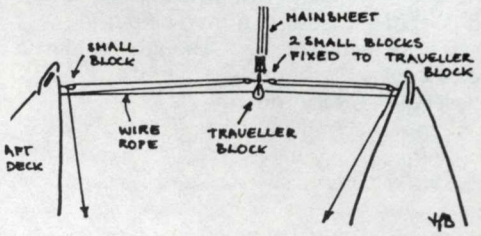
The Running Rigging was taken to each stern corner of the platform and can thus be handled from inside the hull. The ideal is that with 2 people on board, one manages the boat on the Starboard tack and the other person on the Port tack.

Lifelines

I have also rigged lifelines along the side of each hull, the full length of the deck. Thus one can hook on before leaving the protection of the Hull and stay hooked on until one is safely back in the Hull. In rough weather I did find it a little bit dodgy getting back in the hull from the deck, without the life-line there is nothing to prevent one going straight over the top and then outboard, overboard if one trips.

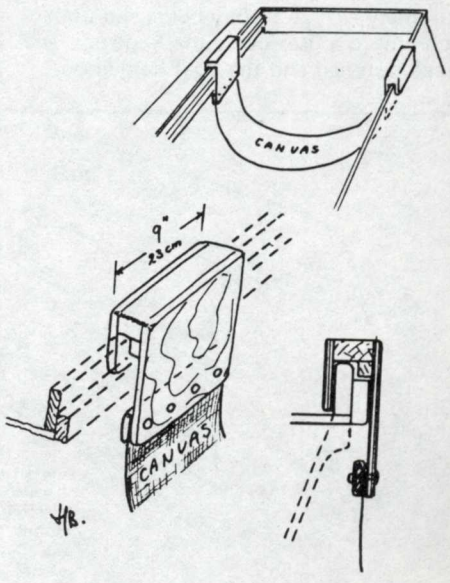
Mainsheet

The terylene Mainsheet Traveller was replaced with a s/s 6mm. wire, as I thought the Mainsail would set better when going to windward. She now goes up to windward better and points up very close. In addition I fitted a method of moving the block along the traveller, this is fully adjustable along the whole length of the traveller and is also managed from inside the Hull.



With the Outboard in the up position the prop was still in the water just enough to kick up quite a lot of spray. I solved this problem with a small apron made from the left-overs of the sail cover material, tear resistant plastic, stretched like a trampoline above the propeller.

(This can be a problem with 'Seagull', and maybe other, outboards. We lifted ours out and lashed it on the platform with a cover over it. Ed.)

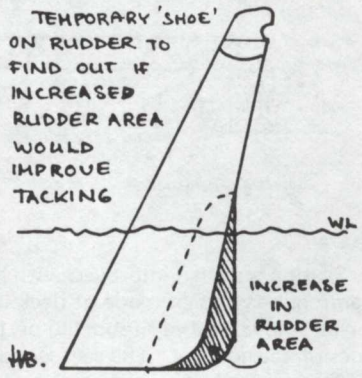


SASSI 3 on custom made box trailer, rudder 'shoes' clearly visible.

Rudders

And last of all, for the moment, I increased the area of the rudders. I had found that the boat did not come about easily in all conditions. She came round slowly and, in upwards of a force 4, with anything of a sea, she just would not come about at all and I had to gybe round. This of itself was not a problem nor was it difficult or dangerous. However I did feel that it could be improved with a greater rudder area. As you know my experience with catamarans is not vast and so, before making new rudders I made temporary 'shoes' and waited for the opinion of Paul Wells before fitting them.

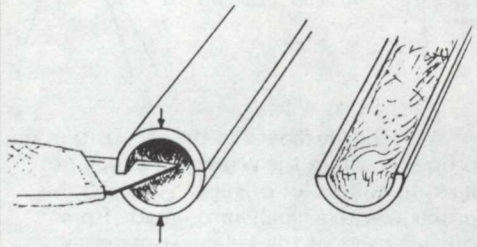
The underwater area is increased by about 20% and the difference in performance really remarkable. 'SASSI 3' comes about now in all conditions. Light airs to Force 7 with a reef in the Main. Really, without thinking about it, push the tiller over and round she comes. Obviously one lets the Jib back etc. before sheeting home. A little more weather-helm was experienced with the 'shoes' on but this may simply be due to the extra thickness of the 'shoe'. Hopefully this will be eliminated when the rudders are re-made. In any case I feel a little weather-helm is a small price to pay for the quite dramatic improvement.



Keel band

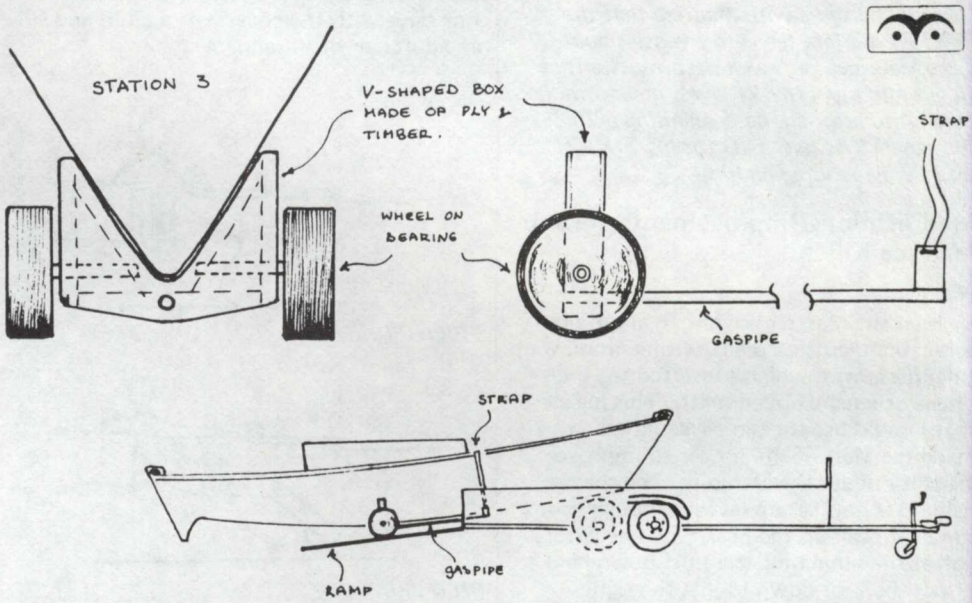
Plastic water pipe of the one-inch o.d. variety makes a super keel-band.

Cut it in half lengthwise with a Stanley knife or something similar, fill the half section with Epoxy resin and fillers then apply this to the keel before painting, holding it in place with masking tape until it goes off. Screws can then be put in every six inches or so. Although the plastic pipe cuts easily with a sharp knife, it is nevertheless very tough.



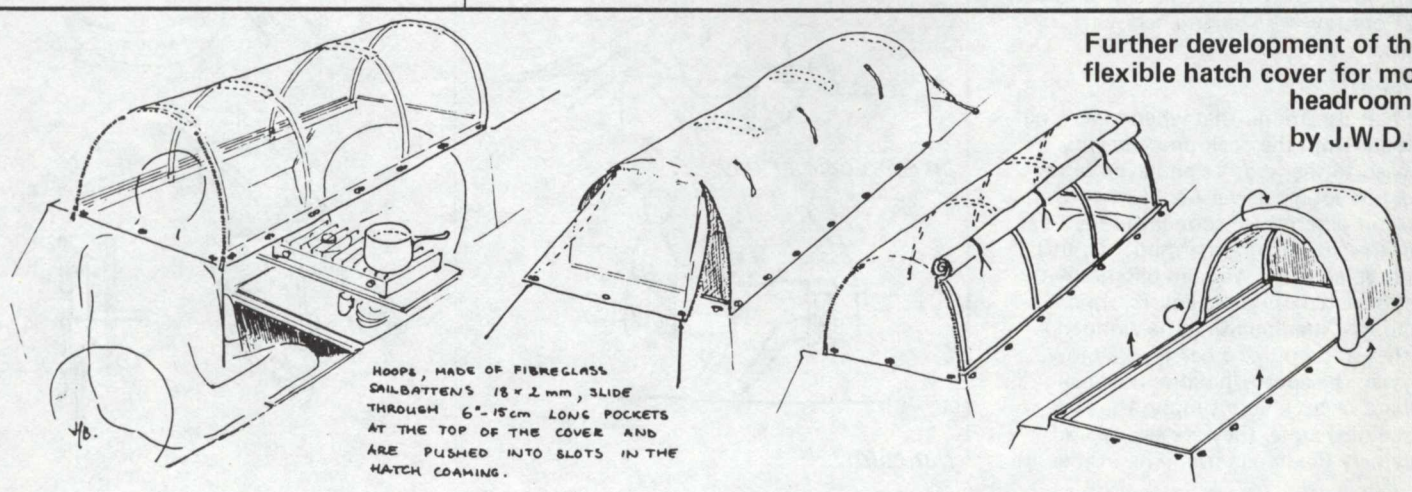
Launching trolleys

Manoeuvering the hulls is much easier with a small trolley. This trolley is designed to fit under Station 3, so that there is no possibility of damage to the hull. The trolley stays fastened to the hull on the trailer and during assembly of the boat and launching, the trolley then being recovered with a piece of rope fastened for that purpose. Recovering the boat is also extremely easy, a trolley being slid under each hull to a previously marked spot, the straps fastened and the boat hauled out.



Further development of the flexible hatch cover for more headroom

by J.W.D.



Racing

Latest about Micro Multihulls
by James Wharram

As this issue goes to press, on checking the files we find that over 300 TIKI 21 and PAHI 26 trailer/sailer plans have been sold in the last 3 years! The new Wharram catamaran trailer/sailer designs are the fastest growing trailer/sailer class in the world.

Cynics often ask how many boats actually get built from plans sold, from the example of the major designs, CAPTAIN COOK, NARAI etc., a surprising number, often, of course years later. But with the new simple stitch and glue ply/epoxy/glass laminate method of building the Coastal Trek designs, very few take longer than a year to build.

New this year is the TIKI 26 design which, if present schemes in motion materialise, will be available not only in self-build stitch and glue ply/epoxy/glass laminate, but also as fibreglass mouldings or complete, finished fibreglass boats. Even if the fibreglass TIKI 26 does not materialise in the way I want it, i.e. perfection, there will be, judging by the sales over the last 3 years of TIKI 21 and PAHI 26 plans, a large number of self-build TIKI 26 plans sold. What this adds up to is that within the next 12 months or so sufficient of these Coastal Trek designs will be around to consider *One Design Class racing*.

In 'The Sea People/Sailorman' no. 1 I define racing as:

The aim of racing is to WIN, to have a fixed moment when you can publicly be seen to be BETTER than your peer group and be admitted by your peer group to be better, through them designating you the WINNER.

This unfortunately can bring out most unpleasant human characteristics. Men will spend fortunes, develop dangerous boat designs, 'bend' the rules beyond reasonable civilized behaviour to be nominated the *Winner*! In the book review section we review a novel which uses this theme in relation to the Admiral's Cup races. Whilst most yachtsmen enjoy reading about these strange expensive practices – that's why it gets good coverage in the yachting magazines – the fact is that most of them prefer not to participate themselves.

What they want is a boat that suits their all-round everyday needs; family cruising, day sailing, value for money, the opportunity to sharpen their sailing skills by *friendly* racing; without spending a fortune on a boat that is highly expensive, dangerous, with a short structural life, and outdated in 2-3 years.

One can race without getting into this trap. A well-known way is One Design Racing where all race the same designs. This does not mean that One-Design racing is for dull, clumsy, no other chance boats. Some of the most beautiful enduring designs have been One-Designs: 'Dragons', 'Six Metres', 'Conway One Designs' (on which I learned racing), 'Stars', etc. There are an enormous number of One-Design class boats raced in all seas, all weathers, for many years, which are economical, structurally sound designs, *and* exciting to sail.

It is not always possible to find sufficient members of your 'Class' or boat type. Many yacht clubs operate a Portsmouth yardstick system that enables boats of different sizes and types to race against each other. It is not always fair on its first application, but with good humour, a bit of give and take, most 'arguments' that can arise are solved by a round of drinks and, even if you still disagree, you know it's worth it to get the sailing experience.

One-Design racing seems reasonable, club Portsmouth handicap racing works satisfactorily. What style of racing is it that produces dangerous, expendable (after 2-3 years), highly expensive boats, and creates amongst the participants what can be described as 'bad vibes'? Almost always it's racing with designs produced through a "rating rule" system.

A rating rule is laid down by a small group of people to their requirement; length, beam, sail area, number of sails, stability, materials, pages of dos and don'ts. The America and Admiral's Cup, Half-ton Cup etc, are based on rating rules. The theory is that boats of different designers, built to those rules will somehow all rate well together for accurate assessment of the 'winner' who is not necessarily the first over the line, but the one on 'corrected time'. Very confusing.

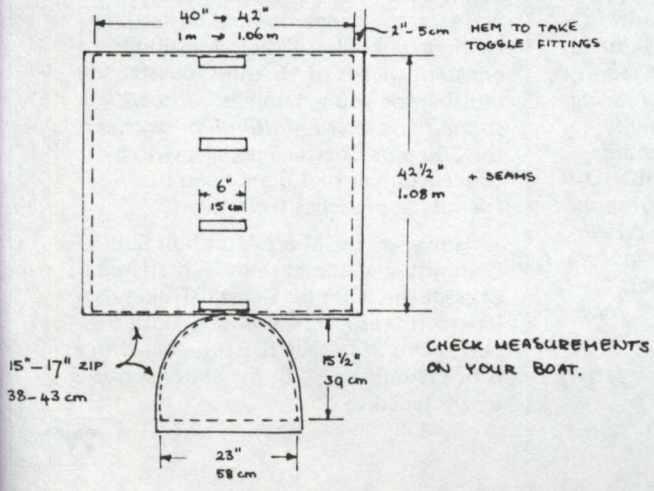
Now I am not writing a history of yacht racing, except to note that the words 'rule cheater' are frequently applied to the winner of such races and that about such boat designs yacht historians write chapter after chapter on how this or that rating rule has led to deterioration in overall design. This is what was discovered about certain IOR designs in the Fastnet disaster, used as a theme in the 'Cry Havoc' novel reviewed in this issue. The Fastnet disaster meant a change in the rules, therefore *new* designs. Great for the designers who had exploited the dangerous loopholes to 'win at all costs', for, as a result, they just sell yet more new designs to the 'win at all costs' yachtsmen.

Over the past 20 years, in the world of multihulls, various attempts have been made to set up a rating rule class by various designers and minority groups. This rating rule system, if you can get it going, gives very prestigious and powerful 'jobs for the boys'. So there are always attempts to start such a system. In multihulls they have always foundered on the question of stability.

You see, successful designers have sufficient of their designs sold for their own One Design racing. Successful designers all appreciate that stability in multihulls, i.e. non-capsizing, is the most important fact in the general acceptance of multihulls by the public. So they design boats that get market acceptance, with a *good safety record*, i.e. freedom from capsize. That is why they are successful.

It is the newcomers or less successful designers who push rating rule ideas for multihulls. They feel that if they gather a group of like-minded people around them they can display a vigorous public image that will equal that of exisiting designers. Above all, if they can (behind a committee/group shield) chop the proven lessons of stability in multihull design by increasing sail area, it gives them, at once, a public image of faster, hence superior, designs over the known and proven designs.

So the successful designers have always fought, or did not cooperate with, these attempts; not because they fear competition, no, as I have written elsewhere, the market potential is big enough for all designers, but successful designers have long memories. For example, in the mid-1960's one cruising/racing design on the market had, on the statistics of boats sold and boats capsized, a *40* times greater chance of capsizing than other



A similar hatch cover idea was developed by David Moizer in Canada and printed in the July '83 Sailorman

equivalent multihulls on the market. The public never knew that this figure related to *one* particular design, they saw *all* multihulls as capsizing. So did the insurance companies, they increased *all* premiums for multihulls, so, for a time, all multihull owners paid for the capsizes of one specific group, sharing also the odium of fatal capsizes.

When the new multihull designer Richard Woods set up the MOCRA Micro Multihull Sub Committee around 1982/83 to start a Rating Racing Rule for trailer/sailers, I thought 'Here we go again'. How far they have gone this time I do not know. Certainly the Micro Multihulls have made a great 'brouhaha', but have they got, as we have, the possibility of 300-500 boats to race in the immediate future? From the letter re-printed below, they want us to help them out in 'numbers' for racing, but they have not been prepared to ask the opinion on what we (about 1500 HINAs, HINEMOAs and 300 Coastal Trekkers) would consider important in the Rules, which, to say the least, is short-sighted.

We received this letter, made official by reason of copies sent to the Chairman and Secretary of the PCA, reproduced below:

Dear James,

We know that you do not like us, nor do you approve of the concept of the Micromultihull, but we are writing to you to invite you to the first Micromultihull World Championships, which as you can see fromthe enclosed, are being run by H.I.S.C. from June 22nd-28th (i.e. sandwiched between the Cowes Multihull Week and the Round the Island Race).

Although, as I say, we understand that you do not believe in Micromultihull racing, we are sure that you realise the advantages of coming with one or more of your boats, and of promoting the meeting in your writings and the Sea People/Sailorman.

The overall World Champion can only be a boat that complies with all the Micro Rules and Safety Regulations, but the handicap prizes have now been extended to include all the races. All your designs that meet the spirit of the Rules and are under 8 m in length will be eligible, providing of course that the safety and stability rules are met.

We know that one of your main objections to the Micro concept is that you consider Micros to be unstable. We would like to remind you that the Micro Rules are the **only** *multihull rules that call for a minimum stability standard (and boats like the Stiletto are too unstable, although they are eligible for the Crystal Trophy, OSTAR etc.), and in fact if any boat capsizes or looses its mast it is banned from racing for the rest of the year.*

We do hope that you will be able to put your objections aside and either enter personally, or find some owners willing to race (e.g. Paul Wells?).

Regards,
Richard Woods.

which I answered as follows:

Dear Richard,

I studied your personal letter of February 5th, and compared it with the M.O.C.R.A. press release enclosed with the letter.

I have never objected to the original M.O.C.R.A. Micro Multihull Racing Class, i.e., a 25' (or 26') trailer/sailer 'grand prix type' racing multihull with overnight accommodation so as to keep class operating costs down. What I have objected to, based on 30 years in the multihull scene, is to suggest that an out and out multihull form stable (as against monohull ballast stable) racing boat is suitable for family coastal cruising (i.e. family = children). Everytime in the past a designer or a design group have tried to design a maximum speed boat (i.e. racer) as a 'cruiser', capsize and death have occured. No new multihull principles have been discovered in the last 4 years to change this, on the contrary, increasing data and understanding of what is a safe multihull has accumulated. Based on the lessons of the last 30 years, and data of safe stable cruising designs, I am prepared to state publicly that your M.O.C.R.A. press release:

> "Micro Multihulls are a new international class of very fast cruising/racing multihulls with an overall length of 26ft (8m). **They can sail constantly at 15 knots**, sleep four people in reasonable comfort and are designed to bridge the gap between the **day racing cat**, such as the Tornado or Dart, and the big **full blown OSTAR cats**. Their main characteristic is that they are demountable and trailable. They are therefore suitable for a wide range of waters from inland lakes and seas to **coastal water cruising** and racing **for young families** with medium sized cars. They are currently available, on the water, sailing for under £6000."

is in view of known past capsizes **grossly irresponsible**. *The capsizing that this type of pushing will bring about could lead to a serious loss of market confidence in all trailer/sailer multihulls, and going by the Australian example, probable government control on the sailing of* **all** *trailer/sailer types.*

By all means have a 'grand prix type' racing trailer multihull to be known as the Micro Multihull Racing Class. But do not blurr the issue of their instability by trying to bulk out your initial racing group by using safe existing trailer/sailer designs as bulk boat fodder and calling all trailer/sailer designs **MICRO** *multihulls. Or to repeat, make irresponsible statements which leads the public to believe that a 26' trailer/sailer multihull should sail "constantly at 15 knots" with "***young families** *coastal cruising", for a price of under £6,000!*

Nor will the suggestion in your letter, that any boat capsized in racing is banned from racing for the rest of the year, improve matters.

A highly skilled racing crew can hold the boat upright; that same boat sold as "stable during racing" (with the skilled racing crew) will quickly capsize in the hands of a young family crew. This has happened so often in the past, it should not be necessary to draw attention to it again.

Yours,

James Wharram

This seems to cover all aspects, perhaps a little hard, but remember when Hanneke and I were blasting away on our TIKI 21 in a force 7 at 12-14 knots off Gibraltar (see Maurice Killen's article, page 18), I was very much aware that Hanneke sitting next to me was 6 months pregnant. You see, Hanneke and I represent the **young family** concept! We can vividly imagine, with our sailing skills and body weight holding down on the windward side a LOW stability Micro Multihull of the GWAHIR (enlarged TORNADO) type (Richard Woods' first concept of a trailer/sailer), when our little 'James' or 'Jutta' either decides to toddle to or require attention on the leeward side, we would be helpless, certainly the quick split-second reaction required on this type of design would fail, with one obvious result — capsize!

On past multihull history, the possible capsize of a low stability multihull, like the Gwahir type, with a Bruce Number of approx. 1.9 (empty boat) (a stability indication, see 'The Sea People/Sailorman' no. 1) would affect not only the future sales of Wharram Coastal Trek designs (which have a Bruce Number (empty boat) of 1.6), but also the resale value and insurance possibility of the existing 300 plus Coastal Trekkers being built and sailed.

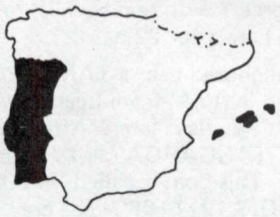
Is that the end of the story? Not quite — in the last few months Richard Woods has brought out a new version of his 25' Micro Multihull trailer/sailer called the 'Strider'. This design now has a Bruce Number of, surprise surprise, 1.6, i.e. the same as our Coastal Trek design range. After 3 GWAHIR years, Richard Woods is learning the lessons of stability. For 'Richard Woods' read 'MOCRA Micro Multihull Sub Committee'. This at last is a sensible step in the right direction.

If the MOCRA Micro Multihull Committee are at last *openly* prepared to admit their move towards stability, and stop the dangerous and misleading writings/talk, like: **"Micro Multihulls = constant speeds of 15 knots, coastal cruising for young families".** *(according to their last Micro Multihull press release),* the 300 plus Coastal Trekkers with a Bruce Number of 1.6 are open to friendly approaches from them.

However, the Micro Multihull Sub-Committee would have to be prepared to treat the 300 plus Coastal Trekker's ideas with respect, something, until the new Micro 25ft. STRIDER design with a Bruce Number of 1.6, they have consistently failed to do.

NEWS FROM SEA PEOPLE....

Edited by Carol Barker



Portugal

Adventures of Jedrek Pruzak's TANGAROA Mk IV 'AMANDA' since leaving Falmouth after the 1984 Summer Meeting in Devoran. He writes in December 1984 from Vila Real, Portugal:

Thank you for the letters you sent me and for the few words from you. Must be really quiet up there in your base . . . Winter, no sailors, no boats – just peace and time to relax for the next summer.

How is here? Well – let's go to the beginning.

Falmouth. Batteries were bad so I had to get Rutland wind generator to get continuous charging. Then days were passing by and we couldn't set off. Waiting for the 'perfect' weather! There was autumn approaching and was no way to obtain better weather. I called up the meteorological office in Plymouth and got information about weather, only had to decide do we go – then, with shivering knees, we set off.

Light winds, a few calms but generally good conditions. We made it very far West, up to 9.30° W, so we were very far from Ushant, very far from Biscay. Just lots, lots of ocean. Sunny weather, lots of dolphins, what a joy for the kids! Playing violin for dolphins. Watch after watch – fast we got routine.

Still I was fastening things, slats, dinghy etc. Then 36 hours of winds force 7 from SW to W. Beating, but was no problem as we could alter course to keep going in most convenient way. Usually we slept both of us from 5 till 8 mornings as was full daylight. Wind vanes held us on course. Then weather got better and with the huge swell we were riding on and on. My astro was reasonably good, so we got to Finisterre like a train just in right place and right time. I was glad that my navigation wasn't too bad after all.

Approaching Finnisterre on the 6th day of trip we got again force 7–8 from NW as usual. Running under mizzen and spinnaker. Wonderful surfing, the sea was still reasonably low so we held good speed for hours. Then – once close to Finnisterre was the time to get spinnaker down. What a job. Stainless steel shackle at the top of mast (spinnaker halyard) snapped and I was happy to see that the nylon halyard held the sail up. I got it down before the halyard could chafe through. Then staysail and mizzen and beating round Cape Finnisterre. Heavy steep sea, hard beat. Engine on to help the sails as the night was coming in fast. Wind NE, tack after tack, meter after meter – harbour was closer. Then, on the onshore tack (on to the Cape), engine stopped and we started drifting. Anchors down. Lots of rope and sail bag full of chain to hold rope down. Breakers on bows. Violent motion but anchors held and after another night at watch, next morning with flat calm we got to Finnisterre and then to Corcubion. To report to police and to get engine mechanic on board. The exhaust pipe was blocked by old rubber ball. Problem no bigger than that – but still 10'000 pesetas went. (Approx. £50).

From there we made it nicely along the coast. Corcubion, Ribeira, Bayona, Viana Do Castello, Leixoes, Figuera Da Foz. Here we had more nasty weather. Tacking 45 hours. Shore passages can be very tiring indeed as we had to watch not only the sea, fishing boats and big ships, but the shore as well. Finally we got to Figuera – and it was an exciting experience as there is at the entrance a bar. So after these two days of hard wind there was quite a swell. Wow – what waves! Again night. Approaching harbour breakwaters. Then the following giant waves got us. 'Amanda' went beautifully, one broach only but I got her on course in time so the next wave came well from astern. It was something! Safely we got into the harbour and we stayed there for a few days.

There we waited out hurricane – we were high and dry so it was no problem, though the sand from the beach did blast off the whole dirt and weed from our bottoms! A few boats were dragging. But the really big event was in Bayona where a few boats were lost. At the yacht club the anemometer showed force 13 Beaufort!!! Believe me – I felt like a newborn man, happy that we weren't at sea at that time!

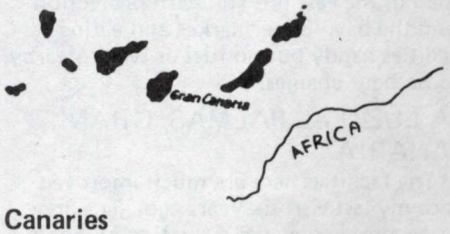
From Figuera to Lisbon via Cascais. In Lisbon I had to buy a new battery. Got not much help from BMW dealers. The generator corroded and now we are only on our wind generator plus some occasional charging from the shore.

Lisbon to Lagos – good sailing, and we logged 5,000 miles since 'AMANDA' was launched for the first time! Lagos and the whole Algarve was sunny and warm. So we made very slow progress – going into each harbour on the way. And of course Culatra. There was Mick O'Sullivan with his little TANE, digging clams for 18 months. No other Wharrams. Actually one architect very keen on Wharrams and thinking hard to build one.

Still in Culatra, there were no facilities to do the job 'with my bottoms'. No power, no jack to lift the boat, not even driftwood to put under on the highest tide! Sand, beach, indeed perfect anchorage for the catamaran, if it was summer it might be good for staying but I thought of doing my work; so we set off to Tavira and finally to Vila Real where I found a proper slipway and got the boat out. Sanded all the damaged fibreglass off and let the wood dry for 2 weeks; the timber itself was in good condition. I was surprised. As the wood dried I put on EPIGRIP epoxy paint (good stuff . . .) and cloth and got the watertight cover again. As I was hauling the boat up I noticed that using the rollers under the keels is wrong as it provides too much strain on single points of the keel plank before the whole boat starts to actually roll. So I towed her on plain wood planks soaked with soap and it was an easy and effortless thing. So I will never use rollers again. Instead I put additional wood planks under the keels to get some extra timber to slide the boat on without putting strains on the fibreglass itself. I think it should work well. I will see how she goes back into the water next Wednesday. At least she came out nice and easy!

Now we will go sailing up the river Guadiana. It is a very nice looking spot. And at the beginning of January we shall move on to Seville and Algeciras. Maybe then to Tanger and Ceuta.

We made 2814 miles from Finland to here. 8 countries and 32 harbours on the way. We analysed our boat and sailing conditions which differ so much from our Finnish reality, and came to the conclusion that 'AMANDA' is too small for our family and that our sailing waters and climate calls for something bigger. Bearing in mind that our sailing season is only a maximum of 3 months long! So we decided to put 'Amanda' up for sale as soon as possible as she is now at her best, new and so well equipped. So if you hear of somebody keen to own and sail a polycat in warm climates – here is a perfect boat. Give us a word or pass the information on. Boat can be available later of course – even from France, Germany, Holland or Finland. We also have a full set of new, unused sails which we would be happy to sell as well; perhaps separately from the boat.



Canaries

At last we have news from Malcolm Dines on NARAI Mk IV 'KITTY OF ALDERNEY' who, along with several other boats, left Cornwall for warmer climates after last year's Summer Meeting. 'KITTY OF ALDERNEY' is now – January 1985, in Tenerife:–

I hope these notes have a 'better late than never' tag. My progress here has been a bit slow, sorting my way through a variety of crew and weather and a shop-

ping trip to Gibraltar from Portugal which took four weeks!

I have some recent local knowledge which may be of interest:

LAGOS, PORTUGAL

The entrance channel to Lagos has been dredged to a minimum of 3 metres so there is access at all times to the secure basin opposite the town.

Yachts lie 'Mediterranean style' with bow anchors and stern warps to the quay on the south side of the basin. Access to town by dinghy across the river to stone steps by the market or a 15 min. walk via the bridge. No harbour charges during my stay (early January '85).

CULATRA, PORTUGAL

Culatra is a sandy island about 2 miles long and 1/3 mile wide, one of a chain of islands that enclose an area of a few square miles of creeks and saltings and sandbanks off the Algarve coast including the towns of Faro and Olhao.

It is a good place for wintering 'away from it all', secure on the sandy beach of a tidal lagoon surrounded by sand dunes. I found Mike O'Sullivan's TANE NUI 'HAPPY RETURN' and Ken Newton's PAHI 31 'FREEBIRD' securely tethered side by side and seemingly part of the local community. There are fishermen living in a shanty town of miniature colourful houses built on sand. The streets are just sand except the 'main' street which has a single line of loosely laid paving stones. Three pubs with corrugated iron roofs serve cold beer at 15p a bottle, bar snacks are provided free by fishermen emptying a few litres of fresh pink shrimps on the counter. There is a twice-daily ferry service making the ½ hour trip to Ohao. (40p return), this town has a fabulous fish and vegetable market on the waterfront and good repair facilities. I was tempted to stay in Culatra!

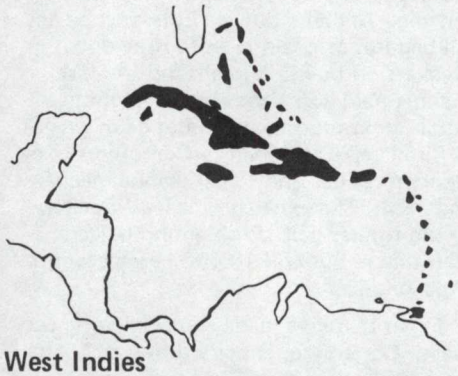
PLAYA BLANCO, LANZAROTE

The Yacht Club at Arrecife gave us a courteous welcome and provided water, good safe landing for the dinghy, telephone, bar. But we found the holding ground poor, being loose rocks and full of shags. Further down the coast near the south tip of the island is a new harbour, Playa Blanco. This has been built for the local ferry but there is room alongside for visiting yachts with access at all times. Open to the east but still with protection from the bay. Supermarket and eating facilities handy but no fuel or water nearby. No harbour charges.

LA LUZ, LAS PALMAS, GRAN CANARIA

The facilities here are much improved since my last visit six years ago. The area for anchoring now has a floating oil boom across the entrance and is in consequence much cleaner. The entrance is between the molehead to port and a small (lit) green buoy to starboard. There is a floating pontoon marina behind the mole with fuel and water. No charge for anchoring. There is an elderly NARAI type, derelict boat floating to her marks in the anchorage. No identifying name but could be a RONGO. I'll sketch some details. *(Indeed a RONGO design, built in the sixties in Ireland, called 'RAKA'. She was sailed to the Canaries in 1978 by the owner and Ernald Pearson. Ed.)*

'KITTY' has performed well, not giving me any cause for concern. The combination of Aries controlled by Autohelm 1000 works perfectly. A good rig with quartering wind/sea is small spinnaker at main masthead, mizzen staysail and mizzen. Good for 8–10 knots in a force 5.



West Indies

We have the next instalment of Tim and Heather Whelan's voyage on their NARAI Mk IV 'IKA ROA'. They certainly do not seem to be in a hurry to get to New Zealand. They write in January from Barbados:

We thought it was time to bring you up to date with our activities.

We left La Palma on 28th November after celebrating Tim's birthday on 'IKA ROA' with a nice crowd of yachties.

The trip started off slowly for the first 2 days, then we got into the 'trades' and got up to 150, 160 and 170 miles a day for a week or two. It got wetter as we went faster and this involved quite a bit of surfing. Being lazy we reduced sail so the self-steering could cope and spent our days reading and eating. Then, just as we got 400 miles from Barbados and said to one another that we should make it in 18/19 days, the wind died (Sod's law). We took the sails down, put the deck tent up. I did some typing and Tim got the sewing machine out and made an awning for the steering position.

Then we got light SW'lies! Then winds up to force 7 with rain squalls, finally arriving here after 22 days.

We anchored near a TANGAROA Mk IV called 'KAYA' from Beer, Devon, but they left two days later. After a week another TANGAROA Mk IV from Beer arrived. This boat is called 'A TOUCH OF MAGIC 1911–66'. The crew are Russ Green and Mary. Russ's brother was the builder of 'IF DOGS RUN FREE' which did the trip some years back.

It was interesting to compare the budget of Wharram owners and 'the rest'. Russ and Mary actually spend less than us! – about the same per month (for 2) as individuals spend per week on other yachts. The Americans and Scandinavians being the richest.

We met the Goddards of the ORO 'KISKADEE' who kindly invited us for drinks at their house on Christmas day.

Then, in the afternoon, we had a party on 'IKA ROA' for all the yachties. We charged $5 (Barbadian) per head and bought chicken, drinks, ice etc. Everyone also contributed food and drinks, 42 people attended!! Everyone wore a hat and a cup was awarded to the crew of a Swedish yacht for best hats. Each country did a song – some plus dance – Maori, and Norwegian! – the deck will never be the same again!

On Boxing Day we sailed on 'KISKADEE' to a beach around the island and swam etc. Nice for someone else to do the sailing and anchoring for once.

Mike Vine and Stuart Morgan's TANGAROA Mk IV 'KAYA' in Santa Cruz.

Since then we have been socialising and exploring the island – the buses are amazing – and cheap! Otherwise it's *very* expensive here. Apples, for example, are 50p each. Meat is reasonable – 1lb is about $3 (Barb.) – the same as a beer or tub of crisps! Local vegetables 'peel 'em and boil 'em' are cheaper than carrots, cabbage etc. which are usually about $3.50 (Barb.) per lb.

We can't decide what to do next. We enquired about teaching here and it seems Tim can get work as they need woodwork teachers. Otherwise they have local people so don't want me.

Other options are working for charter fleets on other islands (in their boats), going to Florida area to work (illegally) in boatyards or (the original plan) to go on through Panama in April.

We keep getting enthusiastic about one or another of the options then changing our minds. It's really too hot and laid-back here to make decisions!

The Goddards are *very* hospitable and took a day of work to drive us around the island yesterday.

We got our copy of SEA PEOPLE/SAILORMAN No. 3 this morning. We must think of some more articles for you. P.B.O. may publish an article on a wind vane Tim built, so when that comes out we can re-write it specifically for 'Wharrams' if that'd be any use.

We've been talking multihulls with lots of people on the way. 'A TOUCH OF MAGIC' says he does 5° better to windward (cutter) than 'KAYA' (ketch). Does this hold true with bigger boats too? (both TANGAROAs).

We've heard a rumour from Harold that there's a fleet of small Wharrams chartering further North – we'll look into it!

Readers should note the comments by Mike Vine and Stuart Morgan in the next letter written in February from St. Lucia, about harbour charges in the Scillies. I feel we should avoid places like this until they become more realistic with their charges. Also beware of the salvage rules! Read on:–

I've been meaning to write to you ever since completing our TANGAROA Mk IV in August '83, but of course never got around to it.

We started building in October '81, after coming up to Milford Haven to collect the plans. The boat was ready to sail in August '83, so we launched her on 11th August, naming her 'KAYA', after a Bob Marley L.P. We had 3 great weeks sailing around Beer, where we live. At the end of August the weather report was bad, so we took her back up the River Axe and hauled her out onto the hard, for interior fitting out. This took us up to July '84 when we re-launched, along with 'A TOUCH OF MAGIC 1911–66', also a TANGAROA Mk IV built by Russ Green, also from Beer.

Both our intentions were to sail to the Carribean, which we have now done! We left Beer on Sunday 29th July, to an amazing send off. Our first stop was St. Mary's Scilly Isles, an absolute rip-off – £3 a night just to anchor. The holding is very bad and both 'KAYA' and 'A TOUCH OF MAGIC 1911–66' dragged anchor. Fortunately we have hardwood keels and a large diesel engine, so we got off the shore with only a few lumps of hardwood missing. Russ had to take a tow from a very *friendly fisherman* who also charged him the very 'friendly' sum of £300!! The fisherman owns a chandlers shop on the waterfront in St. Mary's so I do hope fellow yachtsmen will boycott the shop and not buy anything from it.

We then crossed Biscay to La Coruna, and cruised northern Spain and Portugal. In Peniche we also met the Italians who are building the CAPTAIN COOK. We had a great time with them, bar-b-q's and parties etc.

The next stop was Portimao on the Algarve, where we stayed for 2 weeks. We made the mistake of going into Gibraltar, £6 a night just to get covered in oil. We soon zipped across to Ceuta where the prices were back to normal again – 25p a night alongside a pontoon. Here we met a German chap with a really nice NARAI Mk 1.

As soon as the wind changed to the east (levante) we left and headed for Lanzarote in the Canary Islands, this taking 6½ days. After Lanzarote and Las Palmas, we headed for Santa Cruz, to join up with 'A TOUCH OF MAGIC 1911–66', who we last saw in Portimao.

Here we stocked up with provisions for the trip to Barbados. We left on the 21st November and arrived in Bridgetown on the 13th December. Here we saw Goddard's ORO 'KISKADEE', and also met up with Tim and Heather Whelan on 'IKA ROA', (NARAI Mk IV) who said that our boat was the best TANGAROA they had seen!!

Unfortunately I had to return home for medical reasons just before Christmas, and then met you all at Earls Court.

I am now back on the boat and enjoying cruising the Windward Islands. The trip across the Atlantic was most enjoyable, we had a nice cruising chute and used the mizzen as a wind vane self-steering.

The boat has handled really well and we are pleased with it – cheers!!

P.S. If you are wondering about the name of Russ Green's boat 'A TOUCH OF MAGIC 1911–66', his father was in the magic circle, and he was born in 1911 and died in 1966.

New Crossbeam design for increased Overall Beam
by J.W.D.

As mentioned in 'The Sea People/Sailorman' no. 2, page 17, there has in recent years been a trend to increased overall beam in catamaran designs. Carried to excess, say 30% above the norm of 4-5 years ago, it produces a jerky beam-sea motion, danger of pitch-poling over one bow, and enormously increased strain to beams and beam to hull fittings. Experience has shown that increases of 17-20% over the previous overall beam norm gives *more* stability, deck space, and better water flow between the hulls but without the other problems. However, the crossbeams have to be 'beefed up'. Here are the cross-sections and lengths for the new wider overall beams for AREOI (Pahi 31), CAPTAIN COOK (Pahi 42), TANGAROA Mk IV and TEHINI.

The ratio of WLL to C-C Beam (from centre of hull to centre of hull) on the Classic Designs' is on average 2.5:1. An increase in beam of 17-20% makes this ratio from 2:1, suitable for the small designs (now standard on HITIA and TIKI 21), to approximately 2.2:1 for the larger designs where crossbeam stresses greatly increase.

TANGAROA Mk IV:

Original C-C Beam on plans = 11' (3.35m) (this means a B/L ratio of 2.6:1). Suggested increase of 2' (60cm) to a C-C Beam of 13' (3.96m) (this means a B/L ratio of 2.2:1).

To lengthen the crossbeams by 2' (60cm) the *depth* of the crossbeams must be increased by *one* extra layer of timber of ¾" (19mm).

TEHINI:

Original C-C Beam on plans = 14'8" (4.47m) (this means a B/L ratio of 2.7:1). Suggested increase of 3' (91cm) to a C-C Beam of 17'8" (5.38m) (this means a B/L ratio of 2.25:1).

To lengthen the crossbeams by 3' (91cm) the depth of the crossbeams must be increased by a minimum of 1¼" (32mm), or more practically, by 2 layers of ¾" (19mm) timber.

AREOI:

Original C-C Beam on plans = 10' (3.05m) (this means B/L ratio of 2.5:1). Maximum advisable Beam increase 2' (60cm), to a C-C Beam of 12' (3.65m) (this means a B/L ratio of 2.1:1).

More moderate Beam increase of 18" (45cm) to a C-C Beam of 11'6" (3.50m) (this means a B/L ratio of 2.2:1).

To lengthen the crossbeams by a maximum of 2' (60cm), one layer of ¾" (19mm) timber should be laminated *on top of* the existing crossbeam cross-sections (including the mast beam).

CAPTAIN COOK:

Original C-C Beam on plans = 13'6" (4.11m) (this means a B/L ratio of 2.4:1). Suggested increase of 1' (30cm) to a C-C Beam of 14'6" (4.42m) (this means a B/L ratio of 2.25:1).

Beams can be increased by 1' (30cm) in length *without* an increase in cross-section. However, the plywood webs as shown on the design modification sheet *must* be fitted, and the mast beam should be in *solid* laminated timber.

Have you read?

By J.W.

CRY HAVOC

'Cry Havoc' by Desmond Lowden, published in paperback by Pan, price £1.95, has already been mentioned in this issue, in the 'Racing' section. Usually novels on sea subjects, either historic or present day, fall down on realistic and correct detail. I remember one novel describing an English boat of about 1200 A.D. with a TEAK DECK, so I always approach them cautiously.

I have been told, that this novel was reviewed in the RORC (Royal Ocean Racing Club) magazine 'Seahorse'. It must be interesting.

It is an exciting, thrilling novel that has as its central theme events that have arisen because of a man's obsession, along with others of similar obsession, to win the Admiral's Cup at all costs. Social observations and technical details like the 'original throne', daily recuts of sails for more efficiency, professional 'gorilla' sailors as crew, all ring true, without interfering with the well told adventure, 'will our Hero survive', tale.

At approx. £2.00, it is a good buy.

Key to the Fishes of Northern Europe

J. Farrimond mentioned this book for the 'Have you read' column: Alwyne Wheeler, 'Key to the Fishes of Northern Europe'. Publisher: Frederick Warne. ISBN (Paperback) 07232 2064 6 – ISBN (Hardback) 07232 2097 2. He writes: 'It describes over 350 species with drawings and distribution maps. A very good book.'

Le grand départ et la vie sur l'eau

Ruth Wharram, the clever one in the office, has been reading the French book: 'Le grand départ et la vie sur l'eau' by Michka, published by Albin Michel (22 rue Huyghens, 75014 Paris) ISBN 2 226 00436 X, about a French cruising yacht voyage with marvellous ideas on sea living, the book for active sea rovers. It is a superb way to gain knowledge, to meet, through the book, people whose ideas resemble so many of ours, and improves ones French at the same time.

Practical Boat Owner

As the editor of the 'Sea People/Sailorman', the technical skill of the real yacht magazine editor who turns out month after month good readable magazines, always amazes me.

'Practical Boat Owner', top selling yacht magazine in Britain, has decided to improve itself one step further by giving a cruising section pamphlet with certain issues. The No. 1 pamphlet of April 1984 is particularly good with an article on simple chart work navigation (see the navigation section in this issue), followed by an article entitled 'Pests in Paradise'. Pests are ranging from normal cockroaches and rats to sea wasps, stingrays, sea snakes, the 5" blue ringed octopus that can be lethal, sea crocodiles and cone shells – yes, certain small shell fish can kill. It is a jolly article set in a magazine supplement full of other information like automatic helmsmen etc. – of much interest to readers of the 'Sea People/Sailorman'.

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For Sale

Nearly completed ORO, full survey, reasonable price for quick sale. Also rudders, steel tabernacle, Main and Jib for TANE. Tel. 05546-2743, South Wales, U.K.

For Sale

TANE 1981, epoxy sheathed marine ply, 3 Jeckells sails, Seagull L.S. 90 outboard. Lying at free mooring on Orwell, Suffolk, U.K. Nice boat in good condition, £2,500 ono., Swanley 64962.

For Sale

(Builder moving), half-completed PAHI 31, one hull almost finished, second in shell form, both glassed. £2,000. Banwell 822479, Avon, U.K.

For Sale

TANE NUI, launched '78, marine ply fibreglass sheathed, 5 sails, 2 anchors, 15hp outboard, wheel steering, wired 12 volts, navigation lights, compass, VHF, good condition. Details, photos. £3,500 ono. Coads Green 661, evenings, Cornwall, U.K.

For Sale

Main mast and boom by SS Spars, roller reefing, winches, masthead light etc., £864. Mizzen mast and boom, roller reefing etc., £685. Norselay rigging, polypropylene impregnated, £185. Sails, mainsail, mizzen, staysail, jib, trisail, £859. Engine, Ducati 22hp, air cooled, £558. Would all suit 40 footer. Tel. (0952) 83564. Shropshire, U.K.

For Sale

CQR anchor with 4 yds. chain. Seagull outboard. PAHI 31 plans. Contact: Wilfried Tews, 2347 Kiesby, Germany. Phone: 04641-8360.

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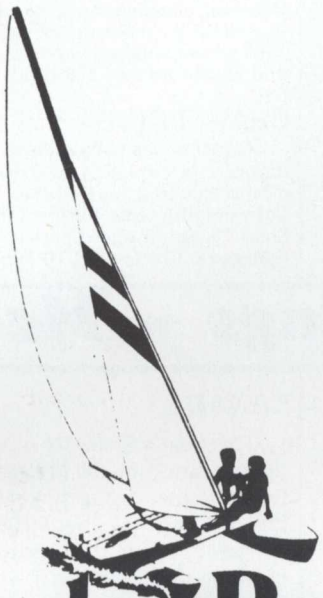
TEHINI 'YIN YANG' built 1974-79, Douglas Fir exterior ply, Cascover sheathed Sailspar aluminium masts. SS rigging. Jeckells' main & mizzen, Teamsails' Staysail & Yankee, Ratsey' genoa & ghoster. Sheet winch, 3 anchors & winch. Rutland windcharger. RDF Sestrel major Compass. Cooker, Coal stove, 2 dories.Ready to sail, strong, proven boat. Selling reluctantly. £16,000.
J. Shores, 59 Rutland Road, Chelmsford.

Crewing/Building help offered:

I would very much like to get to know more about building and sailing 'Wharrams' and would like to offer my help to anyone building and/or sailing in the southern East Anglia area - I have limited sailing knowledge, have built small glassfibre boats and built and repaired various wooden boats.

Capt. Roger Nadin, RAEC, Garrison Officers Mess, Somme Road, Colchester, CO2 7TH.



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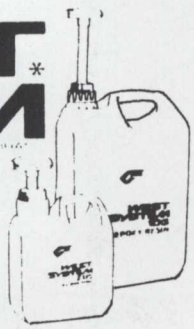

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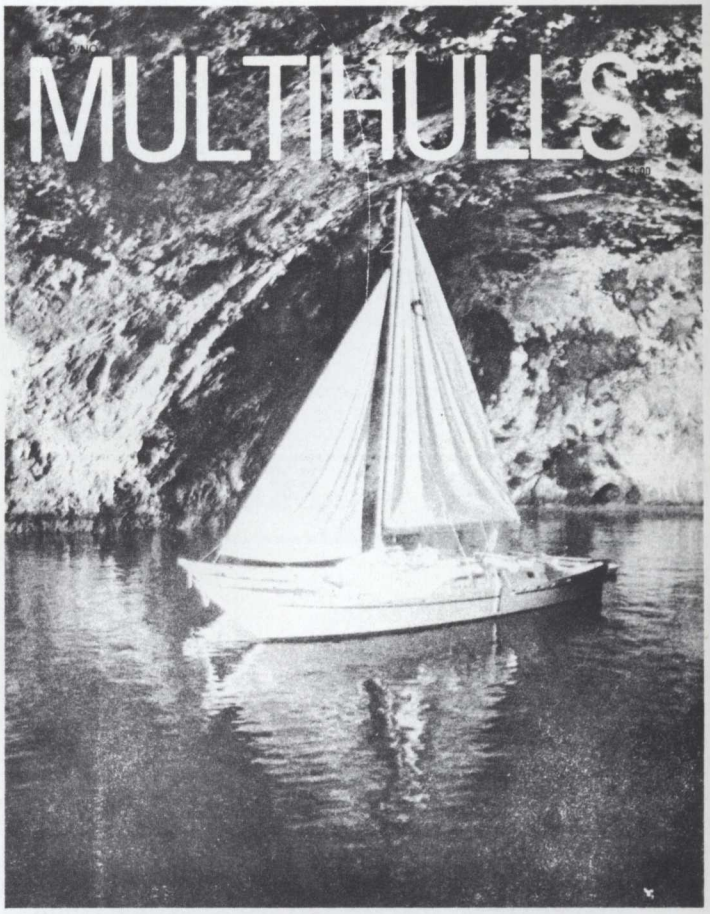

January/February 1984 Cover Photo: Wade Doak's RAKA 'INTERLOCK' in Rikoriko Cave, New Zealand, with inside story: 'A Cat Among The Dolphins'.

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Steve Turner reporting on the AGM — Winter Meeting

In the mid seventies, when my wife Sandy and I were starting to build our ORO, we incautiously attended our first P.C.A., A.G.M.

At this A.G.M. we met many other owners and builders, some of whom are still our good friends ten years on. We were the only members from the south-west at the meeting and to my surprise I went home south-west area Secretary! Over the next few years we held a series of successful summer meetings at Millbrook, until the completion of 'IMAGINE' prompted me to hand over the job to Guy Barron (Where are you Guy?).

For the next few years I took a P.C.A. back seat, until, after some prompting from James I agreed to my name being put forward at the 1985 A.G.M. for the job of Sailing Secretary, a position I chose after careful checking confirmed that no one could say what the Sailing Secretary's duties were!

So Sandy and I attended our first A.G.M. of the mid-eighties and met many friends old and new, but I left for home some hours later, not just Sailing Secretary as expected, but somehow Chairman of the Sail Training Facility as well! With luck the duties of the S.T.F. Chairman will be as nebulous as those of the S. Secretary, but any member who wishes to contact me in either role is welcome to write to me at Foss Quay, Millbrook, Torpoint, Cornwall.

The Cruising Association H.Q. makes a marvellous venue for the A.G.M., and now the P.C.A. has triumphed over the problems of recent years, I hope more members will make the effort to attend for '86. After talking to some of the members who came his year, I came to the conclusion that what most members want from the A.G.M. is a chance to chat with other owners/builders, and so I would like to suggest that while inviting guest speakers (such as the gentleman from Wessex Resins this year) is an excellent idea, it would perhaps be better if the guest was asked to hold an informal question and answer session with those members who wish to take advantage of his presence, allowing those for whom the A.G.M. is their only chance to meet each other more time to swap notes and photos of their boats and tall stories over a drink!

CHARTERING

As mentioned before Steve will be chartering this summer. He is using his 45' ORO 'IMAGINE' as mother ship to cruise with two TIKI 21s on the Cornish south coast. Further information from: Steve Turner, Imagine Charters, Foss Quay, Millbrook, Cornwall PL10 1EN, England.

Meetings - Meetings - Meetings - Meetings

GREAT BRITAIN

August Summer Sailing Meeting

Will be held this year *not* on the August Bank Holiday weekend at the end of August, but on AUGUST 3rd/4th/5th.

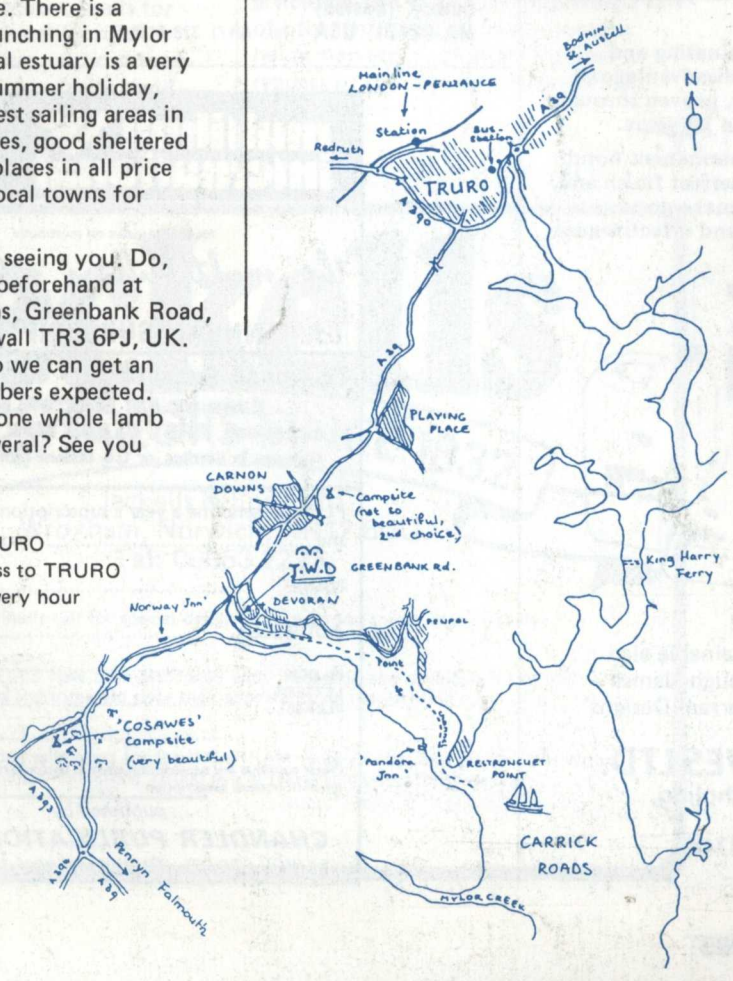
The skippers who had sailed to the 1984 Meeting pointed out that if we had the Summer Meeting at the beginning of August and not the end, it would give British *and* non-British families the opportunity to have a nice cruise to Cornwall and then get back to their home base before the end of their children's school holidays.

On the weekend of the 3rd/4th/5th of August high tides at Falmouth are between 7.30 and 9.30, a little later in Restronguet Creek; they are spring tides so we will have water all the way up to Devoran base.

People with HITIAs, TIKI 21s and PAHI 26s can trail here. There is a suitable slipway for launching in Mylor Yacht Harbour. The Fal estuary is a very good place to have a summer holiday, classed as one of the best sailing areas in Britain. Good camp sites, good sheltered anchoring, eating out places in all price ranges, and beautiful local towns for the less keen sailors.

We look forward to seeing you. Do, if you can, contact us beforehand at James Wharram Designs, Greenbank Road, Devoran, Truro, Cornwall TR3 6PJ, UK. (Tel. 0872 864792), so we can get an approximation of numbers expected. After all, do we order one whole lamb for the barbecue or several? See you folks!

Trains: Intercity to TRURO
Buses: National Express to TRURO
Local buses to Devoran every hour



If you are coming by boat, please contact J.W.D. for more information on mooring facilities.

DENMARK

The 'Danske Flerskrogssejlere' are holding the 'International Multihull Meeting' from Tuesday 18th until Sunday 21st July. It will be held at Bandholm Harbour on the north coast of the big island Lolland in the southern part of Denmark (see map). It will be mainly a social meeting with a couple of races and family sailing.

For family members not so interested in boats, there is the 'Safari Park' next to the harbour and a shallow beach for children to play.

Bandholm has good connections by ferries, road, buses and rail to the Continent and other Scandinavian countries. Further details available from the Chairman Jannik Cortsen (long time TANGAROA Mk I 'JESTER' builder/sailor) at Bakkely 26, 5330 Minkebo, Denmark.

CANADA

This year's SAIL-IN is, as in 1983 at the invitation of the Moizer family at their summer property at Howe island in the 1000 islands, about 10m East of Kingston. Howe Is. is about half way between Montreal and Toronto, and about 20 miles from the north end of U.S. Interstate 81.

Access to the island is by boat or, if travelling by car, by ferry. There is good anchorage for boats and plenty of space for camping. There are also a lot of motels on the road to Kingston. Further details available from the editor of 'Polycats', Shirley Bailey, 3 Sixth Street, Toronto, Ont. M8V 2Z8, Canada, or the June issue of 'Polycats' newsletter.

AZORES

The annual event of 'Sea Week' at Horta, Fayal, will be held this year between 4th and 11th of August. Various events are being planned to mark the 10th Anniversary of this occasion.

A new yacht basin is being constructed in Horta and is expected to be opened in July '85. It has shower and toilet facilities, electricity and water, a fuel dock and car parking facilities; dockage will be free to yachtsmen for the first year. Further information is available from: Horta Tourist Board, Apartado 46, 9900 Horta Codex, Azores, or from Joao Carlos Fraga, R. Zeferino Oliveira 6, 9900 Horta, Fayal, Azores, who has been interested in Wharram catamarans for years and sailed with Tom and Carol Jones on their TANE NUI 'VIREO' from the Canaries across the Atlantic.

Joao is still interested in organising a pursuit race with polycats coming from both sides of the Atlantic and northern Europe. We met Joao at the London Boat Show and discussed the idea. Realising the necessary preparations by the participants, this would probably be an event to coincide with the 1986 or '87 'Sea Week' at Horta. Anyone interested please write to Joao Fraga.

PLEASE FORWARD

or return to:

James Wharram Designs, Greenbank Road, Devoran, Truro, Cornwall TR3 6PJ, England.